ENVIRONMENTAL ASSESSMENT OF THE INSTALLATION AND OPERATION OF AN INTEGRATED ANTI-SWIMMER SYSTEM GALVESTON, TEXAS

COMMANDANT

UNITED STATES COAST GUARD (G-OPC)

MAY 2005

Acronyms and Abbreviations

°C	degrees Celsius
µPa	microPascal
ARL-UT	Applied Research Laboratory-University of Texas
CCC	Criterion Continuous Concentration
CCMP	California Coastal Management Program
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CONEX	Container Express [box]
CWA	Clean Water Act
dB	decibels
dBA	A-weighted decibel scale
dBC	C-weighted decibel scale
DHS	Department of Homeland Security
DNL	day-night level
DO	Dissolved oxygen
DOD	Department of Defense
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
GPS	Global Positioning System
HAPC	Habitat Areas of Particular Concern
Hz	Hertz
IAS	Integrated Anti-swimmer System
kHz	kilohertz
Leq(24)	24-hour sound level equivalent
mHz	megahertz
MMPA	Marine Mammal Protection Act
MSST	Maritime Safety and Security Team
MTSA	Marine Transportation Security Act
NEPA	National Environmental Policy act
NMSA	National Marine Sanctuaries Act
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	NOAA'S National Marine Fisheries Service
ROI	Region of Influence
SAE	Society of Automotive Engineers
SPL	Sound Pressure Level
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service

USCG

FINDING OF NO SIGNIFICANT IMPACT

FOR

U.S. COAST GUARD IMPLEMENTATION AND OPERATION OF THE INTEGRATED ANTI-SWIMMER SYSTEM AT GALVESTON, TEXAS

The proposed action includes the implementation and operation of an Integrated Anti-swimmer System (IAS) based out of Galveston, Texas. The USCG intends to co-locate the IAS as part of the USCG's existing Maritime Safety and Security Team (MSST) in Galveston. The IAS is designed to detect underwater threats to the U.S. using five primary components: a land-based sonar, a portable sonar, a data processor, a vehicle guidance system, and an underwater loud hailer. The land-based sonar has a source level of 206 decibels (dB) at 90 kilohertz (kHz). The portable sonar has a frequency of 1.0 megahertz (mHz) and 1.8 mHz. The underwater loud hailer would have a source level of 180 dB at 1 kHz and would be used only if a potential threat was detected.

The IAS is designed to detect, track, classify, and alert security forces of potential underwater threats to designated high value vessels and/or critical port infrastructure. Potential threats include combat swimmers and divers, whether moving or still, who may or may not be using a propulsion device, and who may be using either closed or open circuit breathing equipment; and unmanned vehicles, either autonomous or remotely operated. The IAS would be used at a range necessary to maintain general awareness and allow security forces sufficient time to react and counter the threat. Extensive research and analysis of alternatives has led to the conclusion that an active sonar system is the only existing technology that affords this capability.

The IAS components are portable and would be transported to mission locations by already existing MSST vehicles. The land-based, data processor, and components of the vehicle guidance system would be based onshore. The portable sonar, underwater loud hailer, and remaining components of the vehicle guidance system are designed for use on an MSST Defender Class boat operating in direct coordination with the onshore IAS components. Under normal circumstances, the IAS would be assigned to specific existing port infrastructure or vessels. The Region of Influence (ROI) for the IAS encompasses the near shore area where the IAS would be deployed. Under normal circumstances, the ROI would be limited to the waters within approximately 300 m of specific, existing shore side, port infrastructure in the area of Galveston Bay. The IAS is not designed or intended for operation offshore. In general, the IAS would be setup at a particular location for some defined period. Operational protocols that would be implemented to minimize adverse effects on protected marine mammal and other species include:

- USCG personnel would monitor the IAS at all times of deployment.
- If IAS is deployed and marine mammal or sea turtle activity is noted which may approach or enter the 160 dB isopleth (200 meter safety zone) of the land-based sonar, the operational commander would take prudent measures to avoid impacting the wildlife which, situation permitting. These may include shutting down the system.
- When conducting training activities, if marine mammals or sea turtles are detected within the 160 dB isopleth (200 meter safety zone) of the land-based sonar, the system shall be shutdown until the marine mammals have left the IAS 200 meter safety zone.
- As there is no warm-up period for the land-based sonar, the safety zone would be visually monitored for 20 minutes prior to turning on the device to be sure it is clear of marine mammals and sea turtles. If the land-based is started during nighttime, night vision devices would be used to monitor the safety zone.
- Barring exceptional circumstances that require such deployment, the IAS would not be placed in a location such that it interferes with obvious marine mammal or sea turtle throughways, or prevents entry or exit of marine mammals or sea turtles into and out of an area, e.g., the mouth of a bay or narrow choke-points, where sonar may deter them from traveling through or by.
- Continuance of existing USCG programs to guard against adverse impacts on marine mammals, e.g., operational guidance, APLMRI, and Ocean Guardian.
- If the IAS were to be deployed in the vicinity of nesting colonial waterbirds, the operational commander would take prudent measures to avoid and/or minimize impacting the wildlife as permitted by the situation.

This project has been thoroughly reviewed by the U.S. Coast Guard (USCG) and it has been determined, by the undersigned, that this project will have no significant impact on the human environment including marine mammals, sea turtles and protected fisheries.

This finding of no significant impact (FONSI) is based on the attached contractor prepared environmental assessment which has been independently evaluated by the USCG and determined to adequately and accurately discuss the environmental issues and impacts of the proposed project and provides sufficient evidence and analysis for determining that an environmental impact statement is not required. The USCG takes full responsibility for the accuracy, scope, and content of the attached environmental assessment.

24 MAY 05 — Date
Environmental Reviewer
CHIEF, CG-443 — Title/Position

I have considered the information contained in the EA, which is the basis for this FONSI. Based on the information in the EA and this FONSI document, I agree that the proposed action as described above, and in the EA, will have no significant impact on the environment.

30 JUN 2005 — Date
COMO 05166
Responsible Official
CHIEF, OFFICE OF DEFENSE OPERATIONS (G-ODO) — Title/Position

USCG

ENVIRONMENTAL ASSESSMENT

FOR

COAST GUARD IMPLEMENTATION AND OPERATION OF THE INTEGRATED ANTI-SWIMMER SYSTEM AT GALVESTON, TEXAS

This USCG environmental assessment was prepared in accordance with Commandant's Manual Instruction M16475.1D and is in compliance with the National Environmental Policy Act of 1969 (P.L. 91-190) and the Council of Environmental Quality Regulations dated 28 November 1978 (40 CFR Parts 1500-1508).

This environmental assessment serves as a concise public document to briefly provide sufficient evidence and analysis for determining the need to prepare an environmental impact statement or a finding of no significant impact.

This environmental assessment concisely describes the proposed action, the need for the proposal, the alternatives, and the environmental impacts of the proposal and alternatives. This environmental assessment also contains a comparative analysis of the action and alternatives, a statement of the environmental significance of the preferred alternative, and a list of the agencies and persons consulted during the preparation of the environmental assessment.

24MAY 05 — Date
Preparer/Environmental Project Manager (as applicable)
TECH. DIRECTOR G-OPD-UNDERWATER PROT. SECURITY — Title/Position

24 MAY '05 — Date
**Environmental Reviewer
CHIEF, CG-443 — Title/Position

In reaching my decision/recommendation on the USCG's proposed action, I have considered the information contained in this environmental assessment on the potential for environmental impacts.

30 JUN 2005 — Date
Responsible Official
CHIEF OFFICE OF DEFENSE OPERATIONS (G-OPD) — Title/Position

* The USCG preparer signs for NEPA documents prepared in-house. The USCG environmental project manager signs for NEPA documents prepared by an applicant, a contractor, or another outside party.
** Signature of the Environmental Reviewer for the Bridge Administration Program may be that of the preparer's.

ENVIRONMENTAL ASSESSMENT OF THE INSTALLATION AND OPERATION OF AN INTEGRATED ANTI-SWIMMER SYSTEM GALVESTON, TEXAS

Contract No.: DTCG23-02-D-EXB001

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MAY 2005

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ENVIRONMENTAL ASSESSMENT OF THE
INSTALLATION AND OPERATION OF AN INTEGRATED ANTI-SWIMMER SYSTEM
GALVESTON, TEXAS

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1. Purpose of and Need for the Action

1.1 Introduction

As the lead Federal agency for Maritime Homeland Security (MLHS)[1], the United States Coast Guard (USCG) is proposing to install and operate a suite of equipment termed the Integrated Anti-swimmer System (IAS) that will enhance their underwater swimmer detection capabilities. The IAS is designed to detect, track, classify, and alert security forces of potential underwater threats to designated high value vessels and/or critical port infrastructure. The IAS would be established at the Port of Galveston, Texas.

The USCG, one of the country's five armed services, is the nation's oldest maritime agency. As an agency of the Federal government, the USCG affords the nation a single maritime service dedicated to saving lives at sea and enforcing the nation's maritime laws. The USCG has continued to protect the nation throughout its long history and has served proudly in every one of the nation's conflicts. National defense responsibilities remain one of the USCG's most important functions.

Today, the USCG operates in all maritime regions:

- Approximately 95,000 miles of U.S. coastlines, including inland waterways and harbors
- More than 3.36 million square miles of Exclusive Economic Zone (EEZ) and U.S. territorial seas
- International waters and other maritime regions of importance to the U.S.

The events of September 11, 2001, significantly changed the nation's homeland security posture. Terrorism is a clear and present danger to the U.S. The USCG has dramatically shifted its mission activity to reflect its role as a leader in MHLS. On March 1, 2003, in response to growing national security demands, the newly formed Department of Homeland Security (DHS) assumed control of the USCG from the Department of Transportation (DOT) in the largest reorganization of the Federal government since the 1940s (Public Law [P.L.] 107-296). The reorganization resulted in the USCG as the lead Federal agency for MHLS. The USCG's heightened maritime security posture will remain in place indefinitely.

[1] MHLS is the concerted national effort lead by the USCG to secure the homeland associated with or in the U.S. Maritime Domain from terrorist attacks.

1.2 Coast Guard Missions

The USCG is the only maritime service with regulatory and law enforcement authority, military capabilities, and humanitarian operations. USCG activities in warfare encompass critical elements of naval operations in littoral regions, including port security and safety, military environmental response, maritime interception, coastal control, and force protection. More than two centuries of littoral warfare operations at home and overseas have honed the USCG's skills most needed in support of the nation's military and naval strategies for the 21st century. The USCG's missions include maritime law enforcement, maritime safety, national defense, and marine environmental protection.

Under the newly formed DHS, one of the USCG's primary missions is to protect the U.S. Maritime Domain[2] and the U.S. Marine Transportation System[3] (MTS) and deny their use and exploitation by terrorists as a means for attacks on U.S. territory, population, and critical infrastructure. The Maritime Transportation Security Act (MTSA) of 2002 contains several provisions relating to the USCG's role in MHLS. It creates a U.S. maritime security system and requires Federal agencies, ports, and vessel owners to take numerous steps to upgrade security. The MTSA required the USCG to develop national and regional area maritime transportation security plans; it also required ports, waterfront terminals, and certain types of vessels to submit security and incident response plans to the USCG for approval.

The USCG has several additional roles:

- Protect ports, the flow of commerce, and the marine transportation system from terrorism.
- Maintain maritime border security against illegal drugs, illegal aliens, firearms, and weapons of mass destruction.
- Ensure that U.S. military assets can be rapidly deployed and re-supplied, by keeping USCG units at a high state of readiness, and by keeping marine transportation open for the transit of assets and personnel from other branches of the armed forces.
- Protect against illegal fishing and indiscriminate destruction of living marine resources.
- Prevent and respond to oil and hazardous material spills—both accidental and intentional.
- Coordinate efforts and intelligence with Federal, state, and local agencies.

[2] The U.S. Maritime Domain encompasses all U.S. ports, inland waterways, harbors, navigable waters, Great Lakes, territorial seas, contiguous waters, custom waters, coastal seas, littoral areas, the U.S. EEZ, and oceanic regions of U.S. national interest, as well as the sea lanes to the United States, U.S. maritime approaches, and high seas surrounding the nation.

[3] The U.S. MTS consists of waterways, ports, and their intermodal connections, vessels, vehicles, and system users, as well as federal maritime navigation systems.

In response to the increased homeland security threat level, the USCG is engaged in Operations Liberty Shield and Iraqi Freedom. Operation Liberty Shield is a multi-department, multi-agency, national team effort to protect American citizens and infrastructure while minimizing disruption to our economy and way of life. Overseas, the USCG is playing a crucial role supporting the other military services in the implementation of Operation Iraqi Freedom. Several USCG cutters, aircraft, reserve, and active duty personnel are currently deployed in the Persian Gulf region and in the Mediterranean to perform waterside security, maritime force protection, and environmental response duties.

In addition, the USCG and Department of Defense (DOD) are partners in two major actions: Operation Enduring Freedom and Operation Noble Eagle. Operation Enduring Freedom generally refers to U.S. military operations associated with the war on terrorism outside the U.S. Operation Noble Eagle generally refers to U.S. military operations associated with homeland defense and civil support to Federal, state, and local agencies in the U.S., and includes the increased security measures taken after the terrorist attacks on September 11, 2001. The operation involves joint agency coordination and cooperation to ensure our nation and its borders are protected from future attacks.

1.3 Purpose and Need for the Action

1.3.1 Purpose of the Action

The USCG is at a heightened state of alert, protecting more than 361 ports and 95,000 miles of coastline, America's longest border. The USCG continues to play an integral role in maintaining the operations of our ports and waterways by providing a secure environment in which mariners and the American people can safely live and work (USCG 2002a). USCG operational forces are required to protect the MTS and critical infrastructure in and around U.S. ports and waterways from underwater threats, including swimmers and divers potentially using a variety of weapons, gear, and vehicles. USCG forces must accomplish this mission without adversely impacting the environment or unduly interfering with legitimate trade and commerce.

The purpose of the Proposed Action is to enhance the USCG's underwater swimmer detection capability in the Galveston, Texas region, in order to protect personnel ships and property from sabotage and or other subversive acts. To support this goal, the USCG is proposing to install and operate an IAS based out of Galveston, Texas. The USCG is also planning to install and operate IAS units in other locations around the country. Separate National Environmental Policy Act (NEPA) documentation will be prepared for these actions.

1.3.2 Need for the Action

The USCG has a broad range of environmental and geographic responsibilities throughout the EEZ. In the wake of the events of September 11, 2001, the USCG expanded its homeland security duties in addition to maintaining its current missions. Threats facing the national security and well being of the U.S. are neither bi-polar nor symmetrical, meaning the threats are not always obvious or conventional. Intelligence reports establish a credible underwater threat to U.S. ports and waterways that includes combat swimmers/divers. A system is needed to address underwater threats to our nation's ports. The system must be able to operate underwater, detect underwater swimmers and threats in all water conditions at a range that allows effective action, and is not easily defeated. The system must also be mobile, immediate and timely (readily available), proven effective and affordable with respect to both procurement and operations. With the Proposed Action in place Operational Commanders responsible for maritime security would have at their disposal underwater capabilities to detect, track, intercept, and, if necessary, interdict a combat swimmer/diver.

1.4 Project Scope and Area

This Environmental Assessment (EA) encompasses the USCG's intended use of the IAS that will be co-located with the Maritime Safety and Security Team (MSST) assigned to Galveston, Texas (see Figure 1-1). The IAS is designed to detect underwater threats to the U.S. using five primary components: a land-based sonar, a portable sonar, a data processor, a vehicle guidance system, and an underwater loud hailer. The land-based sonar has a source level of 206 decibels referenced 1 microPascal at 1 meter (dB re µPA at 1m) at 90 kilohertz (kHz). The portable sonar has a frequency of 1.0 megahertz (mHz) and 1.8 mHz. The underwater loud hailer has a frequency range of 0.2 to 20 kHz and a source level of 180 dB re µPA at 1m at1 kHz. The vehicle guidance system is not a source of underwater sound; it uses radio frequencies and a global positioning system (GPS) to direct the MSST vessel to the underwater threat. The IAS would be monitored by USGS personnel at all times of deployment.

All IAS components would be transported to mission locations using existing MSST vehicles and vessels. The land-base sonar and components of the vehicle guidance system would be based onshore. The portable sonar, underwater loud hailer, and remaining components of the vehicle guidance system are designed for use on an MSST response vessel. No new vessels would be added to MSST fleets as a result of the Proposed Action. Therefore, this EA does not analyze the impacts of

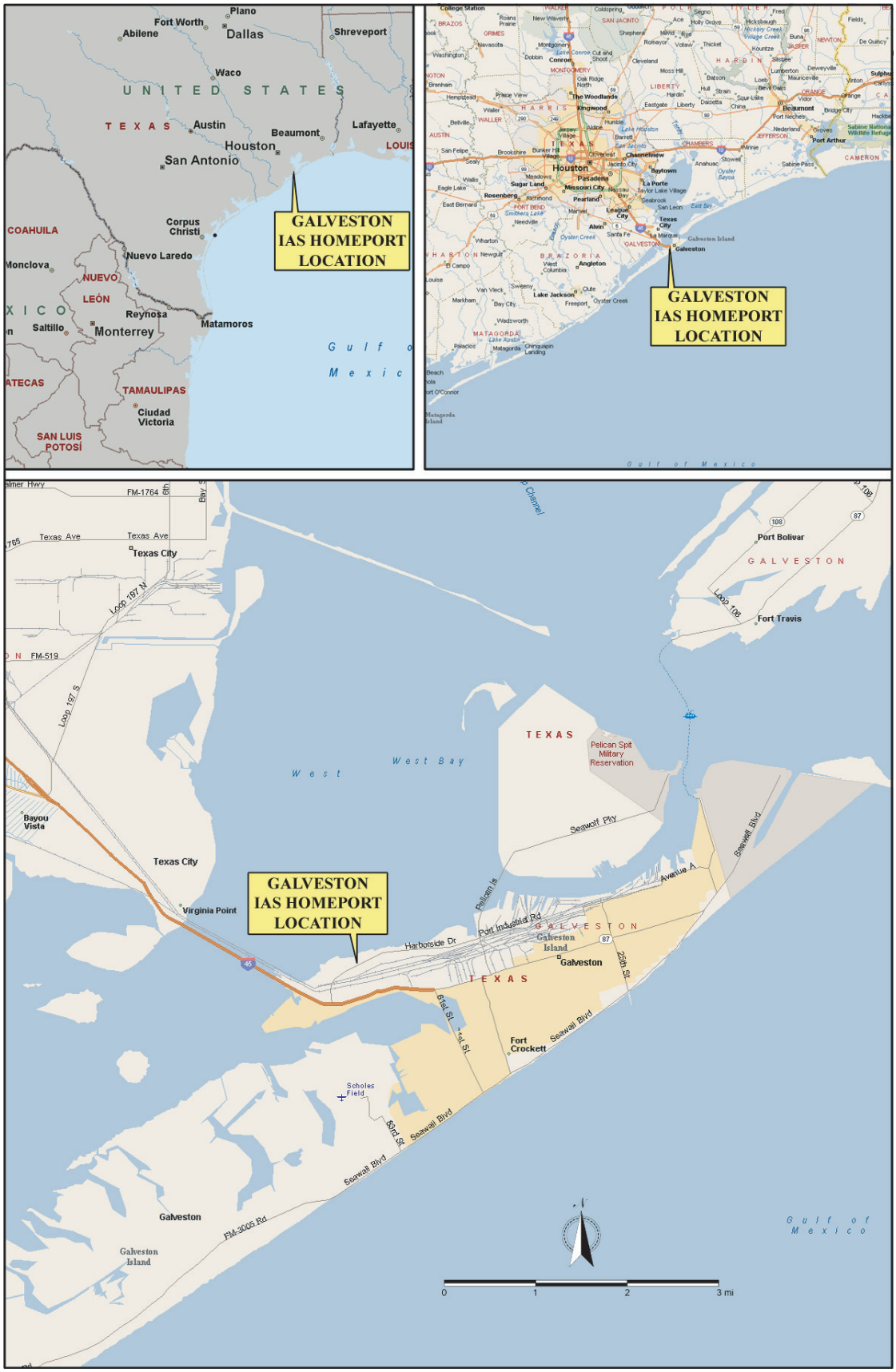

Figure 1-1. Location Map of Galveston IAS Homeport

the MSST trucks and vessels. These have already been assessed in an EA entitled *Environmental Assessment of the Stand up and Operation of the Maritime Safety and Security Team Galveston, Texas* and were found to have no significant environmental impact (USCG 2003).

The IAS is designed to detect, track, classify, and alert security forces of potential underwater threats to designated high value vessels and/or critical port infrastructure. Potential threats include combat swimmers and divers, whether moving or still, who may or may not be using a propulsion device, and who may be using either closed or open circuit breathing equipment; and unmanned vehicles, either autonomous or remotely operated. The IAS would be used at a range necessary to maintain general awareness and allow security forces sufficient time to react and counter the threat. The system is designed to operate to a depth of 100 feet in fresh, salt, and brackish waters; day or night regardless of visibility; and in air and water temperatures and thermoclines normal for a port/harbor environment (arctic to sub-tropical). As outlined in Section 2.2, extensive research and analysis of alternatives has lead to the conclusion that an active sonar system is the only existing technology that affords this capability.

For the purposes of this EA, the Region of Influence (ROI) is defined as the area where the IAS is expected to operate under normal circumstances. For the Galveston IAS, the ROI would be limited to the waters within Galveston Bay and the Galveston Channel (Figure 1-2). This includes the City of Galveston and the Intracoastal Waterway, from Texas City up the Texas coastline to the border with the state of Louisiana (approximately opposite Port Arthur). The area of influence would be limited to the waters within approximately 300 meters of specific, existing, shore side port infrastructure. Currently, unforeseeable security concerns could require the IAS to protect any port facilities or assets outside of the ROI. The IAS is not designed or intended for operation offshore.

The IAS would typically be deployed within the harbor or port to which it is assigned; however, the actual position would be determined by the asset that is being protected, so it could be located anywhere in the ROI. Under normal circumstances, the IAS would be assigned to specific existing port infrastructure or vessels within the ROI; however, currently unforeseeable security concerns could require the IAS to protect any port facilities or assets outside of the ROI.

In general, the IAS would be setup at a particular location for some defined period. During that time, the IAS would be operated continuously. The location and duration of each individual event is impossible to predict and would depend on a number of currently unknown circumstances; therefore,

Figure 1-2. Region of Influence for Galveston IAS

potential impacts from these types of operations would also be speculative in nature. There are too many variables to adequately assess all potential locations. As such, this EA focuses on the potential impacts on developed waterfront areas within the ROI.

1.5 Public Involvement Process

An advertisement will be published in the *Galveston County Daily News* in December 2003 announcing the USCG's intent to prepare an EA, which will give information on the proposal and seek comments (See Appendix A). The USCG will accept comments on this Proposed Action throughout the environmental process. An announcement on the availability of the Final EA and, if appropriate, the Finding of No Significant Impact (FONSI) will be placed in the *Galveston County Daily News*.

1.6 Organization of the EA

Acronyms and abbreviations are used throughout the document to avoid unnecessary length. A list of acronyms and abbreviations used can be found on the inside cover of this EA.

***Section 1*:** Purpose and Need for the Action. As required under the NEPA, this Section provides an overview of the action, describes the area in which the Proposed Action would occur, and explains the public involvement process.

***Section 2*:** Proposed Action and Alternatives. This Section describes the Proposed Action and the No Action Alternative.

***Section 3*:** Affected Environment. This Section describes the existing environmental conditions in the area in which the Proposed Action would occur.

***Section 4*:** Environmental Consequences. Using the information in Section 3, this Section identifies the potential for significant environmental impacts on each resource area under both the Proposed Action and No Action Alternative. Direct and indirect impacts as a result of the Proposed Action are identified on a broad scale as appropriate in an EA.

Section 5: Cumulative Impacts. This Section discusses the potential cumulative impacts that may result from the impacts of the Proposed Action, combined with foreseeable future actions.

Sections 6 and 7: These Sections provide references and a list of this document's preparers.

***Appendices*:** This EA includes four appendices that provide additional information. Appendix A is a copy of the Interested Party letter with attachments, the distribution list and newspaper announcements. Appendix B includes agency correspondence and responses to the Interested Party letter. Appendix C is a list of those regulations, laws, and executive orders that may reasonably be expected to apply to the Proposed Action. Appendix D contains a description of the USCG's Ocean Steward Program, as well as COMDTINSTs regarding Protected Living Marine Resources and USCG Participation in the Marine Sanctuary Program.

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2. Proposed Action and Alternatives

2.1 Proposed Action

The USCG is proposing to establish and operate an IAS to be co-located with the MSST operating out of Galveston, Texas. Threats facing the national security and well being of the U.S. are neither bi-polar nor symmetrical, meaning the threats aren't always obvious or conventional. Intelligence reports establish a credible underwater threat to U.S. ports and waterways that includes combat swimmers/divers. With the IAS in place, Operational Commanders responsible for maritime security will have at their disposal underwater capabilities to detect, track, intercept, and, if necessary, interdict a combat swimmer/diver. The IAS would improve existing security capabilities within the ROI on an ongoing basis.

The IAS system would be able to detect and track a combat swimmer/diver that may or may not be using a propulsion device, whether moving or still, and who may be using either closed or open circuit breathing equipment, at such a range as to maintain general awareness and allow security forces sufficient time to react and counter the threat. The system is expected to operate in typical harbor, anchorage, and wharf environments including fresh, salt, and brackish waters, and in air and water temperatures as would typically be expected in a port/harbor environment. Extensive research and assessment of alternatives has led to the conclusion that an active sonar system is the only existing technology that affords this capability.

The IAS has five primary components: land-based sonar, portable sonar, a data processor, a vehicle guidance system, and an underwater loud hailer.

The land-base sonar, which is a commercially available sound head that integrates with software developed at Applied Research Laboratory-University of Texas (ARL-UT), is used to detect potential threats such as unidentified swimmers or divers. When tested, the land-based sonar unit demonstrated an average threat detection range of 393 yards, and an average alert range of 338 yards. The system detected and alerted 17 of 17 divers.

The land-based sonar provides raw data to the processor, which, in turn, tracks and classifies the threat. The processor enables the IAS to distinguish between a swimmer/diver, a marine mammal, a sea turtle or some other submerged object. It uses a classified algorithm to consider several different criteria and to classify a contact as a swimmer, diver, or another type of object. The highly accurate

system only alerts USCG security response personnel for a target that has been classified as a swimmer or diver.

Under normal circumstances, the land-based sonar (and data processor) would be used from either a pier or a vessel tied to a pier and would be powered from an available electrical connection to the municipal power system. The less preferred alternative would require a portable generator that would be transported by a truck assigned to the MSST. If the land-based sonar was installed at the mission location, the signal receiving equipment could be housed in a vehicle, Container Express (CONEX) box (a military shipping container), or tent located on a pier. The land-based sonar would be transportable and could be moved anywhere in the ROIs, depending on where additional protection was required.

The portable sonar, vehicle guidance system, and underwater loud hailer would be located on an MSST Defender Class Boats. The vehicle guidance system, which receives radio signals from the land-based sonar, is designed to guide security forces to a potential threat. The portable sonar would be used by security forces on the Defender Class Boats to positively identify a potential threat once it has been localized out to 20 to 30 yards. The underwater loud hailer is similar to commercially available diver recall systems that use submerged speakers to transmit human voices underwater and would be used only in the event of a suspected threat. The loud hailer would allow security team members to contact unidentified swimmers/divers before further action is considered. For example, it would be used to convey warning messages to swimmers/divers that have entered a restricted area. Its use would normally be of very short duration (a maximum of a few minutes) and in close proximity to the suspected threat. Under normal circumstances continuous use of the loud hailer would not exceed the exposure duration thresholds outlined in Section 4.4.1.

The system described above would allow the USCG to detect (with the sonar suite) and classify (using the processor) potential underwater threats, guide security forces to them (using the vehicle guidance system), positively identify them (using the portable sonar), and contact them (with the underwater loud hailer) before taking action. The IAS is capable of distinguishing a marine mammal from a human swimmer or other object. A processor (a component of the IAS) uses a classified algorithm that considers several different criteria to classify a contact as a swimmer, diver, or another type of object. The highly accurate system only alerts USCG security response personnel for a target that has been classified as a swimmer or diver. Only then would security forces react, using the underwater loud hailer to convey a warning message to a diver that they have entered a restricted area.

The support structure for the land-based sonar would have sacrificial zinc anodes attached to it to prevent metal corrosion from occurring due to immersion in salt water. It is estimated that 10 to 15 pounds (lbs) of zinc would be attached to the structure depending on the setup.

It is anticipated that only one IAS would be used in conjunction with the MSST in the Galveston area. The IAS would be deployed and operated on an as-needed basis, when and where additional protection is necessary. The IAS would be transported by the MSST as part of its mission requirements. It is anticipated that the IAS would be transported approximated 1.5 times per month and would operate approximately 180 days per year (i.e., approximately 18 times per year for a duration of approximately 10 days).

2.2 Alternatives Analysis

A bedrock principle of NEPA requires an agency to consider reasonable alternatives to a proposed action. Considering alternatives helps to ensure that ultimate decisions concerning the proposed action are well founded are in the National interest and consistent with National security and other National policy goals and objectives.

2.2.1 Alternatives Considered and Eliminated

To warrant detailed evaluation by the USCG, an alternative must be reasonable and satisfy the purpose and need. To be considered reasonable, an alternative must be "ripe" for decision-making (any necessary preceding events have taken place). The system must be able to operate underwater, detect underwater swimmers and threats in all water conditions at a range that allows effective action, and is not easily defeated. The system must also be mobile, immediate and timely (readily available), proven effective and affordable with respect to both procurement and operations, as stated in the purpose and need for the Proposed Action (Section 1.3). The USCG evaluated several potential alternatives to satisfy the purpose and need. This section describes the alternatives considered to provide anti-swimmer capabilities that were eliminated from further study and the basis for that finding. These alternatives are not carried forward for detailed evaluation in this EA.

The anti-swimmer alternatives that were considered include: radar, optical systems, underwater barriers, marine mammals, underwater patrols, and other sonar-based systems. For the reasons described below the only type of system that would satisfy the actions purpose and need is a sonar-based system.

RADAR

RADAR (Radio Detection and Ranging) that is currently used in detecting swimmers and other potential threats at the surface of the water were considered. The USCG's evaluation found that RADAR systems have no capability to detect swimmers in the water. RADAR systems are currently available on the Defender Class Boats and would be used in conjunction with the IAS. However, RADAR by itself would be insufficient to look under the surface of the water.

Optics

Available underwater optical devices (visible light and infrared) were found to have little or no capability to see swimmers in turbid water and only limited capability in clear water, except in cases where the swimmer is very near the surface. Some consideration was give to the supplementing the IAS with an optical system in order to more definitively classify a target, but the potential for additional benefit was not clear and use of optics alone would not sufficiently detect underwater threats.

Underwater Barriers

Underwater anti-swimmer barriers have been used in the past by the military. While these barriers were somewhat successful, swimmers going under, around, or through very easily defeated them. Barriers are also very susceptible to underwater growth weighting them down and causing them to sag making them even more easily defeated. Mobile, surface to bottom barriers were also found to have impacts associated with unintended impingement of sea life.

Marine Mammals

The U.S. Navy (Navy) currently has programs that use marine mammals to detect and warn of underwater threats. Although this alternative was not removed from future consideration, the concept has significant cost, maintenance, time and deployment issues generally associated with the training, care, and handling of large marine mammals that make the use of this alternative unreasonable to meet the immediate port security needs provided by the IAS.

Other Sonar-Based Systems

The USCG also investigated the use of other sonar-based systems to meet the purpose and need. The proposed IAS system was readily available, cost effective and it had been thoroughly tested by the Navy and proven effective. The EA developed by the Navy for similar systems found no significant environmental impacts associated with the deployment or operation of the proposed IAS system

(USN 2002). USCG conducted a comparative analysis of available systems prior to selecting the IAS components. Table 2-1 shows the comparative analysis that was used by the USCG in selecting the IAS system over other sonar-based systems. Technical details of the systems evaluated and selected are not being made available for security reasons.

Table 2-1. Comparison of Sonar Systems for Anti-Swimmer Detection

Sonar System	Range	Sector Scanned	Cost	Track Function	Issues
A	Greater	Larger Area	Much Greater	Advanced Auto track	This system is not mobile and, as such, not suitable for MSST deployment. It could, however, be considered in the future as a permanent fixture. Already deployed by the U.S. Navy.
B	Acceptable	-	-	Advanced Auto track	This is the system chosen for the IAS. It is immediately available, and is relatively cheap and mobile. At the time, it was the only sound-head compatible with the USN processor. Since then Navy was tasked to make their processor an open architecture that can use input from any sound-head.
C	Acceptable	Much smaller area.	Much Greater	Simple tracker	High cost for small sector. This system failed at every test conducted.
D	Acceptable	Similar Area	Greater	Simple tracker	High cost for small sector scan.
E	Unacceptably low.	Variable within acceptable limits	Lower	Minimal	Single beam scanning, short range, slow update rate.
F	Acceptable (estimated)	Larger Area	Unknown	Unknown	A working prototype has not yet been developed
G	Acceptable (estimated)	Smaller area demo. Similar area claimed	Much Greater	Simple tracker	Not in production. The design specifications for this unit show great promise, but they have yet to develop a working prototype

2.2.2 No Action Alternative

NEPA implementing regulations require that a No Action Alternative be analyzed to provide a baseline for comparison with the action alternatives. The No Action Alternative identifies and

describes the potential environmental impacts if the action agency does not choose the Proposed Action or one of the other action alternatives, if applicable.

The continuation of the existing conditions without implementation of the Proposed Action is referred to as the No Action Alternative. For the purposes of this project, the No Action Alternative is defined as not installing and operating an IAS in the Galveston MSST operating area. The No Action Alternative serves as the benchmark against which Federal actions can be evaluated. Inclusion of the No Action Alternative is prescribed by the Council on Environmental Quality (CEQ) regulations and, therefore, will be carried forward for further analysis in this EA.

If the No Action Alternative were selected, as described in this EA, it would not fulfill the USCG's requirement to enhance protection of the MTS and critical infrastructure in and around U.S. ports and waterways from underwater threats. The result might create the potential for significant adverse environmental impacts. Terrorists could strike at military or commercial facilities in these ports, creating health and safety hazards for the surrounding populace and impacting appropriate emergency responses, employment and trade, and marine life. The impacts could be immediate (loss of life) or long-lasting (disruption of commerce activities) that could affect the long-term economy. Recovery time would be dependent on the severity and extent of the loss.

2.3 Selection of the Proposed Action

The Proposed Action was selected because it meets the purpose and need; has the potential to have positive impacts on security and public safety; had no foreseeable significant environmental impacts; and had distinct advantages over the alternative systems considered (Section 2.2). Specific considerations included:

- The installation of underwater sonar could provide added security from terrorist attacks for the safety of ships entering and leaving the Galveston area, numerous commercial interests, and the general population who work and live in and near the port.
- Preventing such attacks would also protect the environment from the impacts resulting from damaged or destroyed infrastructure.
- The Proposed Action would provide additional protection from potential environmental impacts associated with permanent installation of similar systems at multiple locations.

Operating the IAS from a pier or docked vessel is unlikely to result in significant adverse impacts on the environment. In addition, locating the portable sonar unit on the MSST vessels would provide beneficial impacts. The MSST vessels have already been assessed in an EA that found no significant

environmental impact (USCG 2003). Operational protocols that would be implemented to minimize adverse effects to protected marine mammal and other species include:

- USCG personnel would monitor the IAS at all times of deployment.
- If IAS is deployed and marine mammal or sea turtle activity is noted which may approach or enter the 160 dB isopleth (200 meter safety zone) of the land-based sonar, the operational commander would take prudent measures to avoid impacting the wildlife which, situation permitting, may include shutting down the system.
- When conducting training activities, if marine mammals or sea turtles are detected which may approach or enter the 160 dB isopleth (200 meter safety zone) of the land-based sonar, the system shall be shutdown until the marine mammals have left the IAS 200 meter safety zone.
- As there is no warm-up period for the land-based sonar, the safety zone would be visually monitored for 20 minutes prior to turning on the device to be sure it is clear of marine mammals and sea turtles. If the land-based is started during nighttime, night vision devices would be used to monitor the safety zone.
- Barring exceptional circumstances that require such deployment, the IAS would not be placed in a location such that it interferes with obvious marine mammal or sea turtle throughways, or prevents entry or exit of marine mammals or sea turtles into and out of an area, e.g., the mouth of a bay or narrow choke-points, where sonar may deter them from traveling through or by.
- Continued implementation of existing USCG programs to guard against adverse impacts to marine mammals, e.g., the Ocean Steward Plan.
- If the IAS were to be deployed in the vicinity of nesting colonial waterbirds, the operational commander would take prudent measures to avoid and/or minimize impacting the wildlife as permitted by the situation.

Furthermore, the USCG would continue to follow existing measures that it has developed to guard against adverse vessel effects to marine protected species. The USCG incorporates the Ocean Steward plan and strategy into its operating procedures, as well as other long-standing initiatives and programs related to living marine resource protection (Appendix D). Ocean Steward is the USCG's national strategic plan to help the recovery and maintenance of healthy sustainable populations of protected marine species to achieve healthy, sustainable populations. Ocean Steward helps ensure that no significant impacts on marine protected species would occur from IAS operations and other USCG operations.

Under the No Action Alternative, the added safety and security provided by the IAS would not be available. While the USCG would continue with their current level of protection, this level has already been determined to be inadequate for the Galveston operating area. The potential environmental damage from a terrorist attack could be significant. Table 2-2 summarizes the impacts

of the Proposed Action and No Action Alternative. For these reasons, the Proposed Action will be carried forward for evaluation in this EA.

Table 2-2. Impact Summary Matrix

Resource Area	Proposed Action	No Action Alternative
Water Quality	Due to the use of zinc anodes, the proposed action would have minor adverse impacts on water and sediment quality. However, the release of zinc would be transient and below U.S. Environmental Protection Agency (USEPA) limits.	Under the No Action Alternative, ambient water quality conditions would not be impacted and the IAS would not be used. Significant adverse impacts could be expected should this alternative be selected due to the increased risk of a terrorist attack and the potential for significant adverse effects on the noise environment. Recovery time would depend on the severity and extent of the impact.
Noise	Implementation of the Proposed Action would result in minor adverse impacts on existing ambient airborne noise levels and would result in minor adverse impacts on existing ambient waterborne noise levels. The areas of potential effect for the land-based and portable sonars would be less than 100 meters. The underwater loud hailer is similar to commercially available diver recall systems that use submerged speakers to transmit human voices underwater and would be used only in the event of a suspected threat. The loud hailer would allow security team members to contact unidentified swimmers/divers before further action is considered. For example, it would be used to convey warning messages to swimmers/divers that have entered a restricted area. Its use would normally be of very short duration (a maximum of a few minutes) and in close proximity to the suspected threat. Under normal circumstances continuous use of the loud hailer would not exceed the exposure duration thresholds outlined in Section 4.4.1.	Under the No Action Alternative, existing conditions would remain as is and the IAS would not be used. Significant adverse impacts could be expected should this alternative be selected due to the increased risk of a terrorist attack and the potential for significant adverse effects on the noise environment. Recovery time would depend on the severity and extent of the impact.

1 **Table 2-2. Impact Summary Matrix (continued)**

Resource Area	Proposed Action	No Action Alternative
Biological Resources	The Proposed Acton is not expected to cause adverse effects to biological resources that do not occur underwater. Since, the land-based and portable sonar signal frequencies are above the perceptible range of most organisms, the Proposed Action would have temporary minor adverse effects on marine organisms in the IAS operating vicinity. The areas of potential effect would be less than 100 meters. Most marine mammals are not commonly associated with the types of areas where the IAS would be deployed. Dolphins are the species of primary concern, as they are known to be present in regional ports and harbors and they could be adversely affected by noise in close proximity land-based sonar. As outlined in Section 2.3, IAS operating procedures would include protocols to avoided and/or minimize adverse effects to protected marine species. The use of the loud hailer would be temporary (a maximum of a few minutes) and used only under suspicion of threat. Under normal circumstances continuous use of the loud hailer would not exceed the exposure duration thresholds outlined in Section 4.4.1.Additionally, operational protocols and existing USCG policies, regulations, and programs (e.g., Ocean Steward) would be used to minimize adverse effects to marine mammals.	Under the No Action Alternative, existing conditions would remain as is, and the IAS would not be used. Under this scenario, it would be easier for a terrorist attack or an attack that could spread to areas frequented by marine mammals or other biological resources to occur. Significant adverse impacts could be expected should this alternative be selected due to the increased risk of a terrorist attack and the potential for significant adverse effects on biological resources, including marine mammals. Recovery time would depend on the extent of loss.
Public Safety	Beneficial impacts can reasonably be expected from the Proposed Action. The Proposed Action would increase the USCG's ability to protect critical domestic ports and the U.S. MTS from warfare and terrorist attacks. The installation and operation of the IAS will close significant security gaps in our nation's strategic ports.	Under the No Action Alternative, existing conditions would remain as is, and the IAS would not be used, installed or operated. Significant adverse impacts could be expected should this alternative be selected due to the increased risk of a terrorist attack and the potential for significant adverse effects on public safety. Terrorists could strike at military or commercial facilities in the ROI creating health and safety hazards for the surrounding populace. The impacts could be immediate or long lasting. Recovery time would depend on the severity and extent of the impact.

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3. Affected Environment

3.1 Introduction

3.1.1 Resources for Analysis

This Section describes the environmental and socioeconomic conditions most likely to be affected by the Proposed Action and serves as a baseline from which to identify and evaluate potential impacts from implementation of the Proposed Action. In compliance with NEPA, CEQ guidelines, and NEPA Implementing Procedures and Policy for Considering Environmental Impacts (Commandant Instruction [COMDTINST] M16475.1D), the description of the affected environment focuses on those conditions and resource areas that are potentially subject to impacts. These resources include water and sediment quality, soils and land use, water resources, socioeconomics, environmental justice, cultural resources, hazardous materials and waste management, biological resources, air quality and climate, noise, and public safety. Because of the size and limited range of impacts associated with the IAS, some environmental resources and conditions that are often analyzed in an EA have been omitted from this analysis. The following paragraphs identify the omitted resource areas and the basis for such exclusions:

- *Air Quality.* The Houston-Galveston-Brazoria area (which includes the ROI) is classified as non-attainment (severe) for ozone pollution. As an international port and business center, Houston is the source of 51 percent of the area's nitrogen oxide (NO_x) emissions and 23 percent of volatile organic compounds (VOC) emissions. Forty-nine percent of NO_x emissions and 14 percent of VOC emissions stem from on- and off-road mobile sources (TLC 2002). Because the IAS system would be using MSST vessels, which have already been assessed, no significant impacts are anticipated. Accordingly, the USCG has omitted detailed examination of air quality.
- *Soils and Land Use.* The Proposed Action would not involve any physical disturbances, earth moving, or construction activities, nor would it involve any actions inconsistent with present and foreseeable land use patterns in the Galveston area. Implementation of the Proposed Action would not alter the existing soil or land use at these locations. The State of Texas' Coastal Plan Management Act is based on the Coastal Coordination Act of 1991 (33 Texas Natural Resources Code Sections 201 et. seq.). Although Federal lands are excluded, they are subject to the consistency requirement; however, special considerations were identified for "National Interest and Activities of Regional Benefit." Specifically, for the USCG, this includes "national defense and port safety and security" (TCMP 2002). Accordingly, the USCG has omitted detailed examination of land use.
- *Socioeconomics.* The Proposed Action does not involve any activities that would contribute to changes in socioeconomic resources. The IAS would be operated by the MSST in Galveston. No additional personnel would be required as a result of the Proposed Action. Therefore, there are no significant impacts. Accordingly, the USCG has omitted detailed examination of socioeconomics.

- *Environmental Justice.* Implementation of the Proposed Action would not result in adverse impacts in any environmental resource area that would be expected to disproportionately affect minority and low-income populations. Therefore, there are no significant impacts. Accordingly, the USCG has omitted detailed examination of environmental justice.
- *Cultural Resources.* The Proposed Action does not involve any activities that would impact cultural resources. There would be no ground-disturbing activities; therefore, there would be no impact on archaeological sites. The IAS would be co-located with the MSST. No construction is required. Therefore, no potential visual impacts would occur. The introduction of the IAS would not adversely affect setting, qualities of integrity, or jeopardize a property's eligibility on the National Register of Historic Places. Accordingly, the USCG has omitted detailed examination of cultural resources.
- *Hazardous Materials and Waste Management.* The Proposed Action would only involve minor maintenance and repair work, which would be performed by MSST personnel at the homeport location. Major maintenance and repair work would occur at a commercial facility that would have an appropriate hazardous waste management plan. Therefore, the Proposed Action would not require or add a significant amount of hazardous materials or wastes. The land-based sonar unit have would not have a dedicated zinc source. When not in use, the unit would be stored onshore, and would be cleaned frequently; therefore, corrosion or any other type of fouling would not be an issue. Should hazardous materials or waste be generated as a result of this action, USCG personnel would abide by existing regulations governing hazardous materials and waste. Accordingly, the USCG has omitted detailed examination of hazardous materials and hazardous wastes.

3.1.2 Region of Influence

This ROI is defined as the area where the IAS would be operated the majority of the time. The IAS would normally be deployed in the harbor or port to which it is assigned. Currently, unforeseeable security concerns could require the IAS to protect any port facility or assets outside of the ROI. Under normal circumstances, the IAS would be assigned to protect high value vessels and/or critical port infrastructure within the ROI. However, the IAS is transportable and would be deployed as required, to provide additional protection for specific targets throughout the region. The IAS is not designed or intended for offshore deployment or operation

Under the Proposed Action, the IAS would be co-located with the MSST at 7707 Harborside Drive, Galveston, Texas (see Figure 1-1). The IAS would be used primarily to protect existing harbor infrastructure in the Galveston area, including the City of Galveston, Galveston Bay, Galveston Channel, and the Intracoastal Waterway, from Texas City up the coastline to the border of Louisiana (approximately opposite of Port Arthur). The area of influence would be defined as the range in which the sound pressure level (SPL) for the land-based sonar would drop below 180 decibels (dB). This area is approximately from 9.8 to 328 ft (3 to 100 meters) (at 100 meters the SPL is expected to be at or below164 dB) from the sound head of the sonar unit, which would be connected to a pier or shore-side structure.

3.1.3 Environmental Regulations, Laws, and Executive Orders

A table containing a listing of regulations, laws, and executive orders that might reasonably be expected to apply to the Proposed Action is included in Appendix C. It is not intended to be a complete description of the entire legal framework under which the USCG conducts its missions.

3.2 Water and Sediment Quality

3.2.1 Definition of the Resource

Water quality is defined as the ability of a waterbody to maintain the ecosystems it supports or influences. In the case of coastal and marine environments, water quality is influenced by river drainage (including sediments), wet (e.g., precipitation), and dry (e.g., dust) atmospheric deposition. The natural aquatic processes of mixing and circulation can either improve the water quality through flushing or contribute to the decline in water quality. Besides these natural inputs, human activities affect water quality through discharges, runoff, burning, dumping, air emissions, and oil or chemical spills.

Clear waters are valued by society and contribute to the maintenance of healthy and productive ecosystems. Water clarity can affect ecosystem health in coastal and estuarine habitats. Submerged aquatic vegetation (SAV) requires sunlight for photosynthesis and is particularly sensitive to reductions in water clarity. Loss of SAV was reported in 12 of the 22 estuaries surveyed in National Oceanic and Atmospheric Administration's (NOAA) National Estuarine Eutrophication Assessment. Water clarity is considered poor if less than 10 percent of surface light reaches 1 meter (USEPA 2001).

Dissolved oxygen (DO) is fundamental for all estuarine life. A threshold of 4 to 5 parts per million (ppm) is used by many states to set their water quality standards. Concentrations below approximately 2 ppm are thought to be stressful to many estuarine organisms (as cited in NCCR). Oxygen depletion has been associated with habitat loss, fish kills, and increased frequency of harmful algae blooms (USCG 2002f).

Sediment quality is defined as the ability of sediment to support a healthy benthic population and helps determine the relative biodiversity and ecological health of the aquatic systems. Sediments provide an important habitat and food sources for many organisms, and influence the nature of overlying and interstitial waters. Sediments are also important in transporting and storing contaminants. Therefore, sediments are valuable in identifying contamination sources and levels, and

in determining contaminant dispersion pathways. Contaminants integrate over time within sediments. As such, sediments provide an indicator of the level of contamination (Birch undated). Human activities affecting sediment quality are the same as those that affect water quality, including discharges, runoff, burning, dumping, air emissions, and oil or chemical spills.

Evaluating the potential effects of contaminated sediments on estuarine organisms is difficult because few applicable state or Federal regulatory criteria exist to determine "acceptable" sediment concentrations of all substances. Guidelines such as effects range low (ERL) and effects range medium (ERM) values provide environmental managers with benchmarks to determine if contaminated sediments have the potential to adversely affect aquatic organisms. The ERM criterion is the concentration of a contaminant that will result in ecological effects approximately 50 percent of the time, based on literature studies. A more protective indicator of contaminant concentrations is the ERL criterion, which is the concentration of a contaminant that will result in ecological effects about 10 percent of the time. A poor rating for sediment quality is given to an estuary if the ERM criteria for one or more contaminants are exceeded or if the ERL criteria for five or more contaminants are exceeded (USEPA 2001).

The data presented in the next section were collected by the U.S. Environmental Protection Agency's (EPA) Environmental Monitoring and Assessment Program (EMAP) program and presented in the NCCR (USEPA 2001).

3.2.2 Affected Environment

Galveston Bay is the most important estuary in Texas for shipping, industrial use, and shellfish production (GBEP 2002). Galveston Bay has three of the biggest shipping ports in the United States, including the Port of Houston (the eighth largest port in the world), the Port of Texas City, and the Port of Galveston. The bay is also used for recreation boating and fishing. Prior to the 1970's the landlocked portion of the Houston Ship Channel was recognized by the EPA as one of the top ten most polluted bodies of water in the U.S. (Ward undated) . After corrective measures were taken by the state of Texas, the EPA recognized the Houston Ship Channel as the most notably improved body of water. The NCCR describes the condition of the nation's coastal waters, including the Gulf of Mexico (GOM) (Ward undated). The Galveston Bay has fair water clarity, hypoxic conditions, a high loss of wetlands, highly eutrophic conditions, a high concentration of sediment contaminants, and degraded benthic resources (USCG 1996).

As expected, Galveston Bay water and sediment quality is most degraded in the areas of intense human activities (Ward undated). Analyses of long term water and sediment quality data indicate that over the past twenty-five years total suspended solids (TSS) have declined by approximately two-thirds. Additionally, salinity and temperature have decreased 0.1-0.2 parts per trillion per year and 0.05 degrees Celsius (°C) per year, respectively, over the last thirty years. Nitrogen, phosphorous, total organic carbons (TOC), and heavy metals have also declined (Ward undated).

Over the past ten years sediment concentrations of heavy metals in sediments in Galveston Bay have decrease dramatically (Ward undated). Chromium, mercury, and zinc have declined by a factor of two; copper and nickel have declined by a factor of three; arsenic, cadmium, and lead have declined by an order of magnitude.

3.3 Noise

3.3.1 Definition of the Resource

Webster's dictionary defines noise as "sound or a sound that is loud, disagreeable, or unwanted." However, the definition of noise is highly subjective. To some people the roar of an engine is satisfying or thrilling; to others it is an annoyance. Loud music may be enjoyable, depending on the listener and the circumstances. While no absolute standards define the threshold of "significant adverse impact," there are common precepts about what constitutes adverse noise in certain settings, based on empirical studies. Noise is "adverse" in the degree to which it interferes with activities (such as speech, sleep, and listening to the radio and television) and the degree to which human health may be impaired. Noise can also cause "adverse impacts" on marine mammals, depending on the type of noise and duration. Noise can result in stressful situations that disrupt sleep, reproduction, feeding habits, and communication in marine mammals.

This section defines noise standards and methodology discusses the impacts of noise on humans and marine organisms and describes the existing ambient sound level in the ROI. To understand the impact of noise on humans and marine organisms it is necessary to understand the properties of noise in air and water and the existing ambient noise levels in the ROI.

A primary component of noise is wave amplitude or loudness, which is typically measured in dB. A decibel is the ratio between a measured pressure (with sound) and a reference pressure (without sound). It is a logarithmic unit that accounts for large variations in amplitude; therefore, relatively small changes in dB ratings correspond to significant changes in sound. The ambient sound level of a region is defined by the total noise generated, including sounds from both natural and artificial

sources. The magnitude and frequency of environmental noise can vary considerably over the course of the day and throughout the week, due in part to changing weather conditions.

Airborne Noise

To evaluate the total community noise environment (airborne noise), two measurements are used by some Federal agencies to relate the time-varying quality of environmental noise to its known effect on people: the 24-hour equivalent sound level (Leq(24)) and the day-night sound level (DNL). The Leq(24) is the level of steady sound with the same total (equivalent) energy as the time-varying sound of interest, averaged over a 24-hour period. DNL is the average acoustical energy during a 24-hour period with a 10 dB penalty added to nighttime levels (i.e., hours between 10 p.m. and 7 a.m.) to account for people's greater sensitivity to sound during nighttime hours. When measuring sound to determine its effects on the human population, A-weighted sound levels (dBA) are typically used to account for the response of the human ear. A-weighted sound levels represent adjusted sound levels. The adjustments are made according to the frequency content of the sound. Another sound scale is the C-weighted scale (dBC). In contrast to the A-weighted scale, the C-weighted scale provides no adjustment to the noise signal over most of the audible frequency range. The C-weighted scale is generally used to measure impulsive noise such as airblasts from explosions, sonic booms, and gunfire.

Waterborne Noise

Waterborne (underwater) sound measurements are different from airborne sound measurements. Because of the differences in reference standards, noise levels cited for air do not equal underwater levels. The reference pressure used for underwater noise measurements is 1 micro-Pascal (μPA) at 1 meter (re 1μPA-m), which is lower than that used for airborne sound measurements. In addition, underwater noise measurements typically do not have any frequency weighting applied (i.e., A-weighted or C-weighted), while airborne noise is often measured using one of several frequency weighting scales. In many cases, underwater noise levels are reported only for limited frequency bands, while airborne noise is usually reported as an integrated value over a very wide range of frequencies. To compare noise levels in water to noise levels in air, one must subtract 61.5 dB from the noise level referenced in water in order to account for the difference in reference pressure (USN undated). For example, a supertanker that emits 164 dB in air (20 re 1μPA-m) would sound more like 190 dB in water (1 re 1μPA-m) (NOAA 2002).

Because the mechanical properties of water differ from those of air, sound travels faster through water (1,500 meters per second [m/s]) than air (about 340 m/s) (USCG and MARAD 2003). Temperature also affects the speed of sound, which travels faster in warm water than in cold water. Since the wavelength of a sound equals the speed of sound divided by the frequency of the wave (measured in Hertz [Hz]), lower frequency sounds have longer wavelengths than higher frequency sounds. For example, a 20-Hz sound wave is 75 meters long in the water, but only 17 meters long in the air (USCG and MARAD 2003). In seawater, the rate at which sound is absorbed is proportional to the square of sound frequency; therefore, high frequency sounds are absorbed quickly and don't travel as far through the water as low frequency sounds.

Regulatory Framework for Noise and Standard Operating Procedures

USCG NEPA Implementing Procedures (COMDTINST M16475.1-D) require a discussion of the existing conditions in the surrounding communities, including noise regulations. The EPA DoD, and other Federal agencies with non-occupational noise regulations, use the DNL as their principal noise descriptor for community assessments (Cowan 1994).

The USCG Safety and Environmental Health Manual (COMDTINST M5100.47) establishes requirements for noise, which include compliance with local noise ordinances and the identification and assessment of hazardous noise sources. USCG defines a hazardous noise as continuous sound levels exceeding 84 dBA or impact noises exceeding 140 dBA. Noise produced by USCG watercraft or by other USCG facility activities should comply with USCG, state, and local noise guidelines. Using the Society of Automotive Engineers (SAE) J34 method, USCG recommends 86 dBA as the maximum noise level that watercraft may generate while operating at full speed at a distance of 50 feet from a receiver (PWIA 2002).

Most states and territories have developed land use plans and regulations that incorporate noise thresholds and standards in accordance with the Federal Noise Control Act of 1972 (42 United States Code [U.S.C.] 4901, 4918). No ordinances or provisions for watercraft requiring boat engine muffling devices are contained in the Administrative and Legislative Codes of Texas. Furthermore, no codes relating to nuisance noises could be located on the Texas Legislature's website. The USCG's *Reference Guide to State Boating Laws, 6th edition, 2000*, states that the State of Texas does not have a maximum operational noise level for watercraft, confirming the regulatory records review. However, most states have established a maximum noise level operating range of 75 dBA to 90 dBA at 50 feet, which incorporates the SAE tests: SAE J-2005 (stationary test) and SAE J-1970 (shoreline test).

Furthermore, the EPA has determined that 75 dBA at 50 feet is an acceptable noise level to protect public health and welfare (PWIA 2002). The USCG also cooperates with local governments or the host agency to ensure that the facilities comply with local noise standards and land use regulations, where applicable. The City of Galveston, Texas has a general noise ordinance that "prohibits the creation of any unreasonably loud, disturbing or unnecessary noise, or noise of such kind, intensity or duration as to be detrimental to the life or health of any natural person." The code considers the source of the noise and limits noise during the hours of 10:30 p.m. and 7:00 a.m. (City of Galveston 1960).

Human Response to Noise

Human response to noise varies according to the type and characteristics of the noise, the distance between the source and the receptor, receptor sensitivity, and time of day. Human hearing varies in sensitivity for different sound frequencies. The ear is most sensitive to sound frequencies between 800 and 8,000 Hz and is least sensitive to sound frequencies below 400 Hz or above 12,500 Hz. Several different frequency-weighting metrics have been developed using different dB adjustment values. The most commonly used dB weighting schemes are the A-weighted and C-weighted scales, as described above.

Most people are exposed to sound levels of DNL 50 to 55 dB or higher on a daily basis. Studies specifically conducted to determine noise impacts on various human activities show that about 90 percent of the population is not significantly bothered by outdoor sound levels below DNL 65 dB (USDOT 1980). Studies of community annoyance in response to numerous types of environmental noise show that DNL correlates well with impact assessments and that there is a consistent relationship between DNL and the level of annoyance. The methodology employing DNL and annoyance level has been successfully used throughout the U.S. in a variety of settings, ranging from urban to rural (see Appendix D for further explanation on noise metrics).

Marine Organism Response to Noise

Increasing attention is being paid to the impacts of anthropogenic (human-generated) noise sources on marine organisms, especially those associated with the military, as these sources tend to be much louder and can be widespread (ONR 2000, Richardson et al. 1995). Both above-water (e.g., helicopters) and underwater (e.g., vessels) noise is recognized as a disturbance to marine mammals and sea turtles. Individual responses of marine organisms to noise are discussed in more detail in Section 3.4.2.

3.3.2 Affected Environment

Airborne Noise

Currently, the USCG is located adjacent to a compatible area that is primarily zoned for industrial and commercial use. The base is equipped with a variety of piers that meet the needs of roll-on/roll-off, break bulk cargo, and other large vessels. The Gulf of Mexico (GOM), which is connected to the Atlantic Ocean by the Straits of Florida, is an important transportation route, serving ports such as Veracruz, Mexico; New Orleans, Louisiana; and Pensacola and Tampa, Florida.

While home ported or in transit to offshore areas, noise produced by USCG vessels and supporting facilities can combine with other noise sources to affect nearby communities and natural resources. The USCG has established guidelines and developed cooperative agreements to mitigate impacts on neighboring communities. Federal and state laws and local ordinances establish standards and limitations for noise output from ports, airfields, heliports, helipads, power generating plants, and motor vehicles.

Waterborne Noise

Anthropogenic noise sources in Galveston Bay include the operation of platforms and drilling rigs, seismic exploration, shipping and recreational boating, dredging, shoreline construction (bulkheads, revetments, and docks, and pile-driving), urban and industrial development, and helicopters and sonars (GBEP 2002). Noise generated from these activities can be generated through water or air, and may be stationary or transient. The intensity and frequency of the noise emissions are highly variable, both between and among industry sources. In general, the frequencies of anthropogenic sounds are below 1 kHz.

Shipping is a major contribution to underwater noise and ranges in frequency from 0.005 to 0.5 kHz (NRC 2003). SPLs for various types of ships are presented in Table 3-1. Galveston Bay has three of the biggest shipping ports in the United States, including the Port of Houston (the eighth largest port in the world), the Port of Texas City, and the Port of Galveston (GBEP 2002). The noise due to recreational boating is not quantified.

Seismic exploration uses low frequency energy waves to map layers and features below the ocean floor. It also can be used to measure foundation stability, detect groundwater, locate mineral deposits, and search for oil and gas. Recently it has been estimated that a typical 240 dB seismic array would have a 180 dB re 1 µPa - m level at approximately 225 meters from the array (NRC 2000).

Table 3-1. Underwater Sound Pressure Levels for Various Vessels

Vessel (length) and Description	Frequency	Source Level (dB re 1µPa-meter)
Outboard drive – 23 feet (2 engines, 80 horsepower each)	630, 1/3 octave	156
Twin Diesel – 112 feet	630, 1/3 octave	159
Small Supply Ships – 180 to 279 feet	1000,1/3 octave	125 – 135 (at 50 meters)
Freighter – 443 feet	41, 1/3 octave	172

Source: Richardson et al. 1995
Note: These underwater sound pressure levels cannot be directly compared to airborne decibel levels.

Underwater noise from fixed structures such as drilling rigs and platforms ranges in intensity from 20 to 40 dB above background levels and ranges in frequency from 0.03 to 0.3 kHz (USCG and MARAD 2003).

Helicopters generate sounds with frequencies generally below 0.5 kHz (USCG and MARAD 2003). The sounds are usually transient.

3.4 Biological Resources

3.4.1 Definition of the Resource

Biological resources include native or naturalized plants and animals, and the habitats (e.g., wetlands, forests, and grasslands) in which they exist. Sensitive and protected biological resources include plant and animal species listed as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS), NOAA's National Marine Fisheries Service (NOAA Fisheries), a state regulatory agency, or otherwise protected under Federal or state laws. Determining which species and habitats occur in an area affected by a proposed action was accomplished through literature reviews and coordination with appropriate Federal and state regulatory agency representatives, resource managers, and other knowledgeable experts.

The USCG has a number of long-standing initiatives and programs relating to Living Marine Resource Protection, a primary mission of the USCG:

- *National Marine Sanctuary Law Enforcement Program.* Among other activities, this provides routine surveillance of marine sanctuaries concurrently with other USCG operations and provides specific, targeted, or dedicated law enforcement, as appropriate.
- *Ocean Guardian.* This long-range fisheries law enforcement strategy supports national goals for fisheries resource management and conservation.

- *Ocean Steward.* This is the USCG's national strategy to help the recovery and maintenance of healthy populations of marine protected species (See Appendix D).
- *Sea Partners.* This environmental and outreach program is designed to develop community awareness of maritime pollution issues and to improve compliance with marine environmental protection laws and regulations (USCG 2002b).
- *COMDTINSTs.* This is the USCG's implementation and guidance document for policy and procedures.
- *Conservation Program.* This program promotes USCG involvement with other Federal and state agencies, and public and non-governmental organizations to conserve and protect living marine resources (USCG 1996).

Protected and Sensitive Habitats

Protected and sensitive habitats are usually defined as those regions that are identified as marine sanctuaries, critical habitats, fisheries management areas, coral reefs, national parks, wildlife refuges, estuarine research reserve sites, and biosphere reserves. These regions and areas can be under Federal, state, and, in some cases, local jurisdictions.

Wetlands

Biological resources also include wetlands. Wetlands are an important natural system and habitat because of the diverse biologic and hydrologic functions they perform. These functions include water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, wildlife habitat provision, unique flora and fauna niche provision, storm water attenuation and storage, sediment detention, and erosion protection. Wetlands are protected as a subset of the "waters of the United States" under the Clean Water Act (CWA). The term "waters of the United States" has a broad meaning under the CWA and incorporates deep-water aquatic habitats and special aquatic habitats (including wetlands). The U.S. Army Corps of Engineers (USACE) defines wetlands as "those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 Code of Federal Regulations [CFR] 328).

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill materials into the waters of the U.S., including wetlands. In addition, Section 404 of the CWA also grants states with sufficient resources the right to assume these responsibilities. Section 401 of the CWA authorizes states to use their water quality standards to protect wetlands. The permit provided by the State under Section 401 is generally

referred to as a 401 Water Quality Certification. The Texas Natural Resources Conservation Commission (TNRCC) issues 401 Water Quality Certification for the State of Texas.

Marine Mammals and Sea Turtles

Protection of marine protected species, such as mammals, sea turtles, or other threatened or endangered marine species, is an important USCG mission. Biotic and environmental factors, as well as human impacts, could influence the distribution of marine mammals and sea turtles. Biotic factors include prey distribution and abundance, competition for prey, reproduction, natural mortality, catastrophic events (e.g., die-offs), and predation. Environmental factors include chemical, climatic, or physical (i.e., those relating to the characteristics of a location) conditions. Human impacts include, but are not limited to, noise, hunting pressure, pollution, oil spills, habitat loss and degradation, shipping traffic, recreational and commercial fishing, oil and gas development and production, and seismic exploration. The interrelationship between environmental and biotic factors and human impacts can affect the location and temporal distribution of prey species. This, in turn, influences diversity, abundance, and distribution of marine mammals and sea turtles.

The USCG plays an important role in protecting marine mammals and sea turtles because it enforces all U.S. laws within the EEZ. Several of these laws protect marine species, including the ESA, the Marine Mammal Protection Act (MMPA), the National Marine Sanctuaries Act (NMSA), a number of maritime Executive Orders (EOs), and various Federal and international laws. COMDTINSTs include a number of USCG policies, directions, and procedures that include specific rules to ensure that impacts with marine mammals and sea turtles are avoid whenever possible. The USCG's Ocean Steward and Ocean Guardian initiatives, Atlantic Protected Living Marine Resources Initiative (APLMRI), and guidance regarding vessel speed also support these goals (USCG 2002a). Additionally, the Ocean Steward initiative protects marine mammals from being harassed by nearby or repetitively approaching vessels.

The ESA of 1973 (16 U.S.C. 1531-1534), administered by USFWS and NOAA Fisheries, mandates the protection and conservation of threatened and endangered species and the ecosystems upon which they depend. Under the ESA, an "endangered species" is defined as any species in danger of extinction throughout all or a significant portion of its range. A "threatened species" is defined as any species likely to become an endangered species in the foreseeable future. Section 7 of the ESA requires that all Federal agencies consult with USFWS or NOAA Fisheries, as applicable, before initiating any action that could affect a listed species. Section 7 of the ESA states that any project authorized, funded, or conducted by any Federal agency should not "… jeopardize the continued

existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined to be critical."

Under the MMPA of 1972 (16 U.S.C., 1361 *et seq*.), all marine mammals are protected, regardless of whether or not they are listed under the ESA. The Secretary of Commerce is responsible for the protection of all cetaceans (whales, porpoises, and dolphins) and pinnipeds (seals and sea lions), except walruses, and has delegated authority for implementing the MMPA to NOAA Fisheries. The Secretary of the Interior is responsible for walruses, polar bears, sea otters, manatees, and dugongs, and has delegated the responsibility of marine mammal conservation and protection to USFWS. These responsibilities include providing oversight and advice to regulatory agencies on all Federal actions that might affect these species.

The MMPA prohibits the "take" of marine mammals, with certain exceptions, in waters under U.S. jurisdiction and by U.S. citizens on the high seas. Under Section 3 of the MMPA, "take" of marine mammals is defined as "harass, hunt, capture, or kill or attempt to harass, hunt, capture, or kill any marine mammal" and "harassment" is defined as any act of pursuit, torment, or annoyance that has the potential to injure marine mammal stock in the wild, or that has the potential to disturb a marine mammal or marine mammal stock in the wild by disrupting behavioral patterns, including migration, breathing, nursing, breeding, feeding, and sheltering. In cases where U.S. citizens are engaged in activities, other than fishing, that result in "unavoidable," incidental take of marine mammals, the Secretary of Commerce can issue a "small take authorization." The authorization can be issued, after public notice and opportunity for public comment, if the Secretary of Commerce finds negligible impacts.

Fish

Under their Living Marine Resource Protection mission, the USCG protects, conserves and manages fisheries resources by enforcing domestic fisheries laws and ensuring the development of practical enforcement plans. Laws pertaining to fish and fisheries management that the USCG enforces include, but are not limited to:

- Atlantic Coastal Fisheries Cooperative Management Act (16 U.S.C. 2431 et seq.)
- Atlantic Salmon Convention Act (16 U.S.C. 971 et seq.)
- Lacey Act Amendments of 1981 (16 U.S.C. 1531 et seq.)
- Magnuson-Stevens Fisheries Conservation Act (16 U.S.C. 1801, et seq.)
- Northwest Atlantic Fisheries Compliance Act of 1995 (16 U.S.C. 5001 et seq.)
- Tuna Conventions Act (16 U.S.C. 973 et seq.)

Additionally, the Ocean Guardian initiative includes the Fisheries Enforcement Strategic Plan to support national goals for fisheries resource management and conservation.

Coastal and Other Birds

In enforcing the ESA, the USCG also protects endangered and threatened bird species. The USCG must also comply with the Migratory Bird Treaty Act and Executive Order (EO) 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*.

3.4.2 Affected Environment

Protected and Sensitive Habitats

Five protected and sensitive habitats that might occur within or near the ROI include Galveston Bay National Estuary Program (GBNEP), West Galveston Bay Conservation Area, Anahuac National Wildlife Refuges (NWR), Brazoria NWR, and Galveston Island State Park.

The GBNEP is part of the USEPA's National Estuary Program, which was established by Congress in 1987 to improve the quality of estuaries of national importance. The Galveston Bay Plan was created in 1994 and approved by the Governor of Texas and the Administrator of USEPA in March 1995 (TNRCC 1995). It is the Comprehensive Conservation and Management Plan (CCMP) adopted to improve water quality and enhance living resources in Galveston Bay. It addresses threats to Galveston Bay resulting from pollution, development, and overuse (TNRCC 1995).

The West Galveston Bay Conservation Area is located within the 600-square-mile Galveston Bay estuary system (see Figure 3-1), one of the most productive estuaries in Texas and a prized locale for commercial and recreational activity. The conservation area extends from the northeast end of West Bay, just southwest of Interstate 45, westward, and ends just west of Drum Bay. This 77,273-hectare (190,943-acre) area is part of a larger system of connected bays (open- water estuaries) and associated habitats within the Galveston Bay watershed. This watershed serves not only native plants and wildlife but also the Houston metroplex and numerous surrounding cities and towns. The myriad of habitats within West Galveston Bay plays a role in maintaining the health of the ecosystem. Upland prairies slow rainwater and runoff, trapping some sediment and contaminants within plant roots. Marsh plants continue the work, filtering more sediments and pollutants, and helping to keep the bay waters clear and pollutants and excess nutrients to a minimum. Freshwater marshes reduce the frequency and severity of flooding, and their ability to store and slowly release water helps maintain stable salinity in the estuary system. Both freshwater and saltwater marshes slow erosion and even

contribute to soil accretion, actually building new land along the shoreline. Submerged aquatic grasses in the bay and in wetlands act as refuges and nursery areas for estuarine and marine species. The bay and wetlands serve as nursery grounds for more than 95 percent of the recreational and commercial fish species found in the Gulf of Mexico. Galveston Bay is ranked second nationally in seafood production. The conservation area is well known for its excellent birding. Three-quarters of the bird species found in North America use some part of Galveston Bay as a migratory stopover site or breeding area. The shoreline of the conservation area has been identified as critical habitat by the Western Hemisphere Reserve Shorebird Network, and its wetlands are the winter home for large duck populations. The federally endangered piping plover nests in the bay area, as do state-listed white-faced ibises and reddish egrets. The uplands of West Galveston Bay are a mosaic of salty prairie, sandy prairie, and coastal tallgrass prairie. Kemp Ridley's sea turtles (*Lepidochelys kempi*) and juvenile loggerhead sea turtles (*Caretta caretta*), both federally and state-listed species, are known to feed in numerous areas of Galveston Bay.

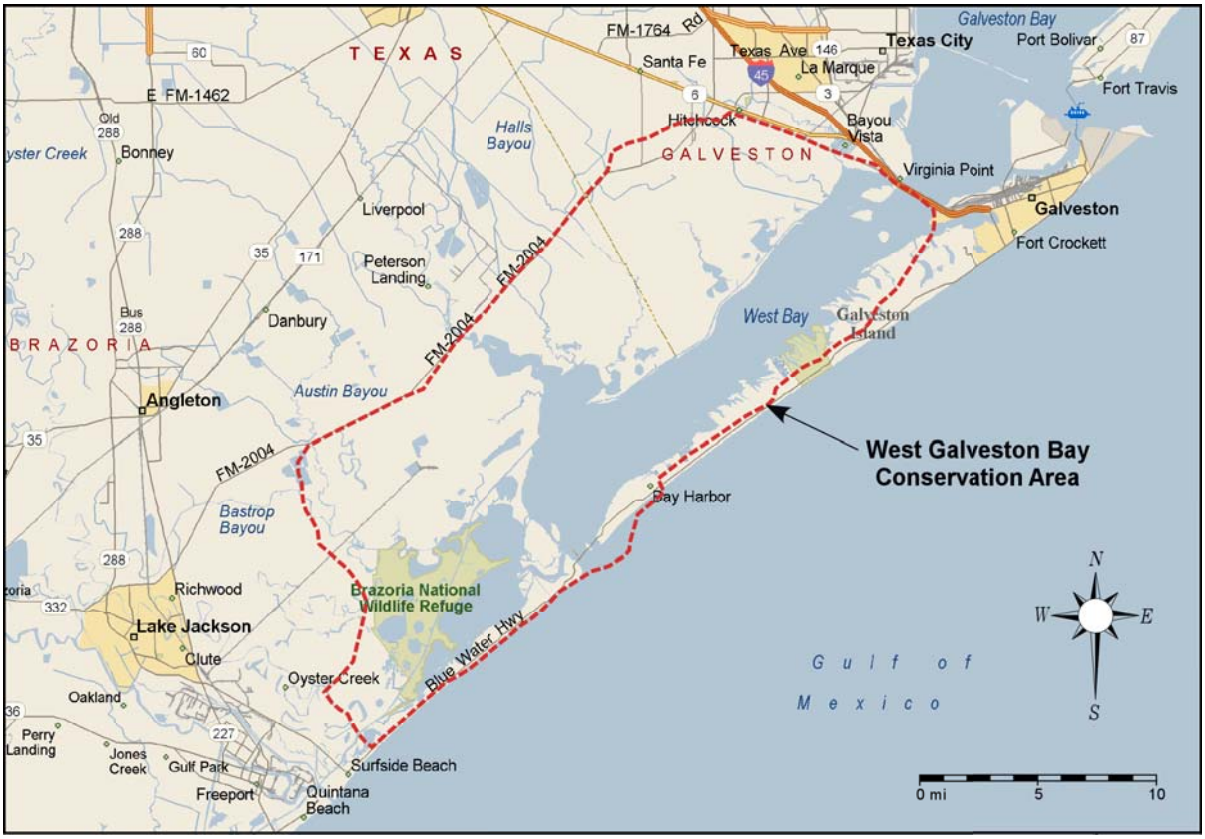

Figure 3-1. Location of West Galveston Bay Conservation Area

Brazoria National Wildlife Refuge (NWR) is a 40,000-acre wildlife refuge consisting of saline and non-saline prairies (including 5,000 acres of native bluestem prairie), salt and mud flats, fresh and salt marshes, numerous potholes, several saltwater lakes, and one freshwater stream. Brazoria NWR represents one of the last coastal prairies in Texas (USFWS undated). It is one of three NWRs (the other two are San Bernard and Big Boggy) that form a complex of coastal wetlands that harbor more than 300 bird species (USFWS undated).

The Anahuac NWR is located on the upper Texas gulf coast. The refuge is 34,000 acres and consists of meandering bayous that cut through ancient floodplains creating expanses of coastal marsh and prairie (TPW undated).

Galveston Island State Park is on the west end of Galveston Island. It is a 2,013-acre park that was acquired in 1969 from private owners under the State Parks Bond Program (TPW undated). The Galveston Island State Park has undertaken the largest wetland restoration project in a Texas state park. The project has produced 130 acres of new inter-tidal marshes and 100 acres of sea grass beds (TPW 2002a).

Wetlands

As a result of the previously cited Federal and state regulations, the USCG is responsible for identifying and locating jurisdictional waters of the U.S. (including wetlands) occurring on USCG installations where these resources have the potential to be impacted by the agencies mission activities. Such impacts could include construction of roads, buildings, navigational aids, and other appurtenant structures; or activities as simple as culvert crossings of small intermittent streams, rip-rap placement in stream channels to curb accelerated erosion, and incidental fill and grading of wet depressions.

Wetlands common in the ROI include isolated depressional wetlands and estuarine wetlands. Wetland plants in the region might be herbs (grasses and leafy plants without woody tissue), shrubs, or trees. Submerged wetlands, seagrasses, are found in shallow water at a few secluded areas where the water is warm and clear. Emergent wetlands extend from the shore inland as a narrow band of fringing smooth cordgrass (*Spartina alterniflora*) salt marsh or as larger expanses of higher salt, brackish, or fresh marsh. Brackish marshes are normally saltmeadows of marsh hay cordgrass (*Spartina patens*) with or without varying amounts of bulrushes (*Scirpus* spp.), shortgrasses, and flowering plants. Most forested wetlands are associated with tidally influenced rivers.

These wetlands encompass the western portion of Galveston Bay and the West Bay between the mainland and most of the south side of Galveston Island. Within this area are brackish, intermediate, and fresh wetlands, including forested wetlands, estuarine bays, and bayous. Although this area has been designated a wetlands conservation area by Texas, there are no local shoreline protection or wetland conservation policies (SWCP 2000). As 97 percent of land is privately owned and managed, Texas has created a volunteer wetland preservation program for private landowners. The Wetlands Assistance Guide for Landowners is a comprehensive guide to Federal, state, and private programs offering technical and/or financial assistance to private wetland owners within the State of Texas. The programs are designed to enhance, create, and conserve wetlands in Texas by providing technical, financial, and educational assistance to private landowners. In some cases, payments are made at fair market rates for permanent protection of wetland areas (WAGL 2002). Since such a large amount of Texas' land is in private ownership, identification of wetlands beyond the comparatively small number of state projects is extremely difficult and will not be attempted in this EA.

Marine Mammals

Twenty-nine species of marine mammals occur within the GOM (MMS 2001b). There are 28 species from the order Cetacea (whales and dolphins, including 7 species from the suborder Mysticeti (i.e., baleen whales) and 21 species from the suborder Odontoceti (i.e., toothed whales including dolphins) (MMS 2001b). There are two subspecies of the West Indian Manatee (Order Sirenia, and Family Trichechidae), the Florida manatee (*Trichecus manatus latirostris*), and the Antillean manatee (*Trichechus manatus manatus*) (MMS 2001b).

Six of the whale species that occur in the GOM and both subspecies of the West Indian manatee are listed as endangered. The endangered whale species include the sperm whale (*Physeter macrocephalus*), sei whale (*Balaenoptera borealis*), blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), northern right whale (*Eubalaena glacialis*), and humpback whale (*Megaptera novaeangliae*). It is believed that the documented occurrences of the sei, blue, northern right, fin, and humpback whales in the GOM are extralimital or accidental occurrences (Wursig et al. 2000). The sperm whale commonly occurs in waters greater than 590 feet (180 meters) (USCG and MARAD 2003). While it is possible, it is not common for whales to enter the developed coastal estuarine environments where the IAS is likely to be operated.

The West Indian manatee is rare west of the Lake Pontchartrain watershed, which is more than 100 miles east of the ROI. As such, all endangered and threatened species of marine mammals have been eliminated from further consideration.

While an additional 22 species of non-endangered and non-threatened cetaceans can occur in GOM waters, the only species that may occur within the ROI are the bottlenose dolphin (*Tursiops truncatus*), the Bryde's whale (*Balaenoptera edeni*), and the minke whale (*Balaenoptera acuturostrata*). The remaining 19 species of cetaceans are expected in the deeper waters of the continental shelf and/or the continental slope (Wursig et al. 2000).

The bottlenose dolphin is the most common cetacean in the GOM. Research indicates that there are two sub-populations: coastal and oceanic populations. In 1994, the GOM's coastal population of bottlenose dolphins was estimated to be 3,499 dolphins (NOAA Fisheries 1997).

The Bryde's whale is the most commonly observed baleen whale in the GOM, with 12 confirmed, live sightings and 12 verified strandings (Wursig et al. 2000). The population size of the Bryde's whale is yet unknown. The Bryde's whale is most commonly sighted in the DeSoto Canyon region off western Florida, near the 100-meter isobath.

There have been no live sightings of minke whales in the GOM, where the species is considered rare (Wursig et al. 2000). It is suspected that the minke whales stranded in the GOM are winter migrants, part of the Canadian Atlantic coast population of minke whales. The Canadian Atlantic coast population size is unknown but the best available abundance estimate is 4,018 whales in 1999 (NOAA Fisheries 2002).

Sea Turtles

All five species of sea turtles that inhabit the GOM are threatened or endangered (MMS 2001b). These species are the loggerhead sea turtle (*Caretta caretta*), Kemp's ridley sea turtle (*Lepidochelys kempi*), leatherback sea turtle (*Dermochelys coriacea*), hawksbill sea turtle (*Eretmochelys imbricata*), and the green sea turtle (*Chelonia mydas*).

Sea turtle life history stages include eggs, hatchling, juvenile, and adult (MMS 2002a). In general, sea turtles nest along the entire northern GOM coastline; however, specific nesting distributions by species are described below. Hatchling sea turtles move offshore in a swimming frenzy immediately after hatching. Post-frenzy, hatchling sea turtles move to areas of convergence or to sargassum mats and undergo passive oceanic migrations (Wyneken 2001). Juvenile sea turtles actively recruit to

nearshore nursery habitat and move into adult foraging habitat when approaching sexual maturity (MMS 2002b). At the onset of nesting, adults move between foraging habitats and nesting beaches. Mating habitat depends on species and may occur off nesting beaches or remotely. Females reside near nesting beaches during nesting season (MMS 2002b).

There are no designated critical habitats or migratory routes for sea turtles in the northern GOM. However, NOAA Fisheries recognizes many coastal areas as preferred habitat (i.e., important habitats for the species within a specific geographic area) for sea turtles. For example, nearshore or inshore areas are preferred habitat for green sea turtles, while bays, especially in Louisiana and Texas, are preferred habitat for Kemp's ridley sea turtles (MMS 2002b). Sargassum mats are also recognized as preferred habitat for hatchlings (MMS 2001b). Highest sea turtle abundance in the western GOM occurs in depths from 0 to 60 feet (0 to 18 meters). However, sea turtles are more abundant in the eastern part of the GOM relative to the western part of the GOM (McDaniel et al. 2000).

Loggerhead Sea Turtles. The loggerhead is the most abundant sea turtle in the GOM (MMS 2002b). It has been federally listed as a threatened species since 1978 (NMFS and USFWS 1991a, NMFS 2002). It is a cosmopolitan species that inhabits temperate and tropical waters, including estuaries and continental shelves of both hemispheres (NMFS and USFWS 1991a, NMFS 2002). Index data indicate that between 1989 and 1998, the number of loggerhead nests laid along the U.S. Atlantic and GOM coasts ranged from 53,000 to 92,000 annually, with an average of nearly 73,000.

In the southeastern U.S., female loggerhead sea turtles mate from late April through early September (NMFS and USFWS 1991a). For their first 7 to 12 years, loggerhead turtles, referred to as pelagic immatures at this stage, inhabit the pelagic waters near the North Atlantic. When loggerhead sea turtles reach a straight-line carapace length of 16 to 24 in (40 to 60 cm), they begin to recruit to coastal inshore and nearshore waters of the continental shelf throughout the U.S. Atlantic and the GOM. At this stage they are referred to as benthic immatures. Benthic immatures have been found in waters from Cape Cod, Massachusetts to southern Texas.

Kemp's Ridley Sea Turtle. The Kemp's ridley sea turtle primarily inhabits coastal waters in the GOM and northwestern Atlantic Ocean (NMFS and USFWS 1992a, NMFS 2002). This species has been federally listed as an endangered species since 1978, and is considered the most endangered sea turtle in the world (NMFS and USFWS 1992a, NMFS 2002). Nesting is limited to beaches at Rancho Nuevo, a stretch of beach in southern Tamaulipas, Mexico. Nesting occurs from April into July. On

average, individual females nest every other year (ranging from every year to every 4 years), with an average of 2.5 nests per female per season. Average clutch size is 100 eggs per nest (NMFS 2002).

Nesting data indicate a severe decline of Kemp's ridley sea turtles from more than 40,000 females when the nesting aggregation in Rancho Nuevo was first discovered. In the 1970s, the number of females ranged from 2,000 to 5,000. The number of nests increased from a low of 702 nests in 1985 to 1,930 nests in 1995 and 6,277 nests in 2000 (NMFS 2002).

Kemp's ridley sea turtles have been sighted within 9.3 miles (15 kilometers) of shore and in depths less than 59 feet (18 meters) (MMS 2002b). Nearshore waters of the GOM are believed to provide important developmental habitat for juvenile Kemp's ridley sea turtles (NMFS 2002). The primary subadult habitat is along the northern GOM coast from Cedar Key, Florida, to Port Aransas, Texas (NMFS 2002).

Leatherback Sea Turtle. The leatherback sea turtle has been federally listed as an endangered species since June 2, 1970 (USFWS 2002a). It is primarily a pelagic species and is distributed in temperate and tropical waters worldwide (NMFS and USFWS 1992b, USFWS 2002a). Of all sea turtles, the leatherback is the largest, deepest diving, most migratory, widest ranging, and most pelagic sea turtle (USFWS 2002a). Nesting grounds are found circumglobally. Leatherbacks undergo extensive migrations from feeding grounds to nesting beaches. Once they nest, they move offshore and use both coastal and pelagic waters (NMFS 2002).

U.S. nesting sites include the Florida east coast; Sandy Point, U.S. Virgin Islands; and Puerto Rico. Nesting occurs from March through July. On average, individual females nest every 2 to 3 years, laying an average of five to seven nests per season. Average clutch size is 70 to 80 yolked eggs. Critical habitat has been designated for the leatherback sea turtle in the Virgin Islands and at Sandy Point Beach, St. Croix, and the waters adjacent to Sandy Point Beach (50 CFR 17.95, 50 CFR 226.207) (USFWS 2002a).

Global nesting data indicate a severe decline from more than 115,000 females estimated in 1980 to recent estimates of 26,000 to 43,000 nesting females (USFWS 2002a). Numbers of leatherback sea turtles in the western Atlantic might be declining. Recent increases in mortalities are reportedly due to interactions with fishing gear (NMFS 2002).

Leatherback sea turtles were sighted during the GulfCet I and GulfCet II surveys (MMS 1996, MMS and USGS 2000). In the GulfCet I survey, the majority of the sightings occurred from the Mississippi

Canyon to the DeSoto Canyon. The GulfCet I survey indicated leatherbacks were primarily an oceanic species where depths are greater than 656 feet (>200 meters) (MMS 1996). These results were reiterated during the GulfCet II survey, when leatherback sea turtles were more commonly sighted on the continental slope than the shelf. The leatherback sea turtles that were sighted on the continental slope were 12 times more abundant during the summer than the winter (MMS and USGS 2000). Temporal variability in leatherback distribution and abundance suggests that specific areas might be important to this species, either seasonally or for short periods of time.

Hawksbill Sea Turtle. Although the hawksbill sea turtle is the least common sea turtle in the GOM, it has been recorded in waters of all of the states located along the GOM (NMFS and USFWS 1993). Hawksbill sea turtles have been sighted near coral reefs south of Florida and very few have been documented near Texas (NMFS 2002). The hawksbill sea turtle has been federally listed as endangered throughout its range since 1970. This species is primarily coastal and seldom seen in waters deeper than 65 feet (19.8 meters). Hawksbill sea turtles inhabit rocky areas, coral reefs, shallow coastal areas, lagoons or oceanic islands, and narrow creeks and passes. The species is found in tropical and subtropical waters in the Atlantic, Pacific, and Indian Oceans. The global population of hawksbill sea turtles has declined 80 percent over the last 100 years, with only approximately 15,000 females nesting worldwide. Only five regional populations remain with more than 1,000 females nesting annually remain in Seychelles, Mexico, Indonesia, and two in Australia (USFWS 2002b).

The highest densities of nests for the hawksbill sea turtle occur on the GOM and Caribbean coasts of the Yucatán Peninsula, Mexico. Nesting also occurs in lower densities on scattered beaches. The Caribbean populations account for 20 to 30 percent of the hawksbill population worldwide (USFWS 2002b). Historically, the Panama breeding population used to be the most important breeding population in the Caribbean; now the Mexico population is the most important. In most locations, nesting occurs between April and November, but varies depending on the area. No more than four nests were recorded annually from 1979 to 2000 in Florida. Nesting on GOM beaches is extremely rare, with only one nest on Padre Island, Texas, documented in 1998 (NMFS 2002).

Green Sea Turtle. The green sea turtle breeding colony populations in Florida and on the Pacific coast of Mexico have been federally listed as endangered since 1978; all other populations have been listed as threatened (USFWS 2002c). The species was listed in 1978. The green sea turtle nests in tropical and subtropical waters worldwide. The green sea turtle inhabits shallow waters (except when migrating) inside reefs, bays, and inlets and tends to be found in areas with marine grass and algae

(USFWS 2002c). Green sea turtles are found in western Atlantic waters of the U.S. from Massachusetts to Texas, as well as Puerto Rico and the U.S. Virgin Islands (MMS 1999).

In the U.S., green sea turtles nest in North Carolina, South Carolina, Georgia, Florida, U.S. Virgin Islands, and Puerto Rico. The east coast of Florida is considered a principal nesting area for green sea turtles. Conservative estimates from 1990 through 1999 range from 470 to 1,509 nesting females per year in Florida (NMFS 2002). Since historical data on green sea turtles are sparse, it is unclear how reduced the nesting population is. Estimates do indicate that the species might be recovering. Green sea turtles rarely nest in the GOM, but nesting has been reported at Eglin Air Force Base, on the Florida Panhandle (MMS 1999). On average, individual females nest every 2 to 4 years, laying an average of 3.3 nests per season, at approximately 13-day intervals. Average clutch size is approximately 140 eggs (USFWS 2002c).

Green sea turtles are known to make extensive migrations between nesting and feeding habitats (NMFS 2002). Hatchling green sea turtles eat a variety of plants and animals (USFWS 2002c) and forage in areas such as coral reefs, emergent rocky bottom, Sargassum mats, and lagoons and bays (MMS 2001b). Feeding grounds in the GOM include inshore south Texas waters; the upper west coast of Florida; and the northwestern coast of the Yucatán Peninsula, Mexico.

Green sea turtles occur in small numbers over seagrass beds along the south Texas coast and the Florida GOM coast, however, reports of nesting along the GOM coast are infrequent and the closest important nesting aggregations are along the east coast of Florida and the Yucatán Peninsula (NMFS and USFWS 1991b). The GulfCet I and GulfCet II surveys did not identify any green sea turtles, although there were some sightings of unidentified sea turtles (MMS 1996, MMS and USGS 2000). Critical habitat is designated for the green sea turtle in the waters off Culebra Island, Puerto Rico (50 CFR 226.208).

Fish

Commercial and recreational fisheries resources in the GOM are managed by the states within the Gulf of Mexico States Marine Fisheries Commission (GSMFC), and federally by the Gulf of Mexico Fishery Management Council (GMFMC), and NOAA Fisheries. EFH has been designated for 11 species within the ROI. While the Gulf Council did not designate Habitat Areas of Particular Concern (HAPC) for individual species, they identified several HAPC to benefit all species under GMFMC jurisdiction. Table 3-2 lists the species and their life stage(s) that are protected as part of the EFH within the ROI.

Table 3-2. Species of Marine Life and Life Stages Found in the EFH

Common Name	Species	Life Stage	
		Juveniles	Adults
Brown shrimp	*Penaeus aztecus*	X	X
Cobia	*Rachycentron canadum*		X
Gray snapper	*Lutjanus griseus*		X
Gulf stone crab	*Menippe adina*	X	X
Lane snapper	*Lutjanus synagris*	X	
Pink shrimp	*Penaeus duorarum*	X	X
Red drum	*Sciaenops ocellatus*	X	X
Spanish mackerel	*Scomberomorus maculates*	X	X
Spiny lobster	*Panulirus argus*	X	X
Stone crab	*Menippe mercenaria*	X	X
White shrimp	*Penaeus setiferus*	X	X

Source: GMFMC 1998

Coastal areas are essential breeding, nursery, and feeding areas for many marine fish and shellfish. Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, Federal agencies must consult with fishery managers concerning actions (including the issuance of permits for private activities) that may adversely impact EFH.

While no species of threatened or endangered species are expected to occur in the ROI, three species of concern may occur in the ROI. These include the sand tiger shark (*Odantaspis taurus*), saltmarsh topminnow (*Fundulus jenkensi*), goliath grouper (*Epinephelus itajara*).

Coastal and Other Birds

A variety of bird species lives in shoreline habitats. Birds are not specifically tied as intimately to their habitats as benthic species such as blue crabs or oysters, but they require similarly protective nesting sites, nursery grounds, and foraging habitats. Bird populations in Galveston Bay and the surrounding areas have significant commercial, recreational, ecological, and aesthetic values. In addition, many bird species are predators on fish, shellfish, or benthic organisms and, therefore, are important indicators of the health of the food web and the status of different bay habitats. Of the over 130 species of birds known to breed in the Galveston Bay region, 18 species of state or federally listed species are known to use the estuary. Table 3-3 provides a summary of these species.

Table 3-3. Avian Species Known to Breed in the Galveston Bay Region and their Status

Species	State Status	Federal Status
Waterbirds		
Eastern brown pelican, *Pelecanus occidentalis*		E
Reddish egret, *Egretta rufescens*	T	
White-faced ibis, *Plegadis chihi*	T	
Wood stork, *Mycteria americana*	T	
Whooping crane, *Grus Americana*	E	E
Raptors		
Swallow-tailed kite, *Elanoides forficatus*	T	
Bald eagle, *Haliaeetus leucocephalus*	T	T
Common black-hawk, *Buteogallus anthracinus*	T	
Gray hawk, *Asturina nitidus plagiata*	T	
White-tailed hawk, *Buteo albicaudatus*	T	
Zone-tailed hawk, *Buteo albonotatus*	T	
Northern aplomado falcon, *Falco femoralis septentrionalis*	E	E
Peregrine falcon, *Falco peregrinus*	E	
Cactus ferruginous pygmy-owl, *Glaucidium brasilianum cactorum*	T	
Mexican spotted owl, *Strix occidentalis lucida*	T	T
Shorebirds		
Piping plover, *Charadrius melodus*	T	T
Eskimo curlew, *Numenius borealis*	E	E
Interior least tern, *Sterna antillarum athalassos*	E	E
Sooty tern, *Sterna fuscata*	T	

Source: TPW 2002b

Many species of raptors occur in the region. Bald eagles (*Haliaeetus leucocephalus*), which are federally listed as threatened, migrate through and nest in the area. Peregrine falcons, which are state listed as endangered, also migrate through the region.

Several species of wading birds, including snowy egrets (*Egretta thula*), roseate spoonbills (*Platalea ajaja*), tricolored herons (*Egretta tricolor*), black skimmers (*Rynchops niger*), and great egrets (*Casmerodius albus*) hunt in the shallows, feeding mainly on small fish, amphibians, and arthropods. These species breed in the Gulf of Mexico, using tall trees or forested areas for nesting habitat.

A wide variety of waterfowl species lives in or visits the Galveston Bay area. The most commonly observed species are the green-winged teal (*Anas crecca*), ring-necked duck (*Aythya collaris*), lesser scaup (*Aythya affinis*), red-breasted merganser (*Mergus serrator*), and ruddy duck (*Oxyura jamaicensis*).

Two species of endangered birds that may feed, nest or rest in the ROI include the Attwater's greater prairie chicken (*Tympanuchus cupido attwateri*) and the brown pelican (*Pelecanus occidentalis*).

The Attwater's prairie chicken resides in Galveston County in the area bounded by State Highway 146, Moses Lake and the levee. Attwater's prairie chickens live in coastal prairie grasslands, and prefer a variety of tall and short grasses in their habitat. Males aggregate in groups called "leks" to attract mates, where they dance and make a booming noise. Hens build their nests in tall grass, and the eggs hatch in April or May.

The brown pelican occurs along the entire Texas Gulf Coast, often found near passes and in proximity to water with high visibility and adequate prey density. Brown pelicans an other colonial waterbirds nest locally on shell islands and sand spits in Galveston Bay, the Galveston Channel, and the Intracoastal Waterway.

3.5 Public Safety

3.5.1 Definition of the Resource

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. Public safety is one of the USCG's primary missions, as the USCG is the prominent overseer of maritime safety in all U.S. waters, including the high seas. The U.S. maritime transportation system is diverse, with components that include geography, environmental conditions, and the number and types of vessels.

U.S. ports must provide safe and efficient rapid turnaround capabilities to accommodate expanding trade and the increasing size and speed of oceangoing ships, many of which are foreign. U.S. ports also handle a large volume of coastal and inland traffic. Since the events of September 11, 2001, the safety of the country's ports and its maritime system has received increased scrutiny and concern. Major members of the U.S. maritime transportation system include Federal agencies, commercial groups, state and local groups, and public and community groups (USCG 2002a).

3.5.2 Affected Environment

Galveston Bay has three of the biggest shipping ports in the United States. These include the Port of Houston, the Port of Texas City, and the Port of Galveston (GBEP 2002). The Port of Houston was founded in 1909. It is now ranked first in the United States in foreign waterborne commerce, second in total tonnage, and sixth in the world. Approximately 175 million tons of cargo was moved through the Port and 6,414 vessels called at the Port in 2002. The Port of Houston is 25-mile-long and comprised of public and private facilities. These facilities are designed for handling general cargo, containers, grain and other dry bulk materials, project and heavy-lift cargo, and virtually any other kind of cargo. The Port of Texas City was founded in 1893. It is the eighth largest port in the U.S. and the third largest in Texas. It volume currently exceeds 78 million net tons of cargo per year. The Port of Galveston was founded in 1825. It has facilities to handle all types of cargo including containers, dry and liquid bulk, breakbulk, refrigerated and project cargoes, and cruise passengers.

4. Environmental Consequences

4.1 Introduction

This section presents the potential environmental impacts of the Proposed Action and the No Action Alternatives. USCG personnel and cutters currently perform security duties in and around the Port of Galveston. The Proposed Action would result in an addition of equipment to the MSST currently operating out of Galveston, TX.

The Proposed Action is the deployment and operation of an IAS system. The IAS would consist of five primary components: a land-based sonar, a portable sonar, a data processor, a vehicle guidance system, and an underwater loud hailer. The portable sonar, vehicle guidance system and underwater loud hailer would be installed on a MSST response vessel. Under normal circumstances, the land-based sonar unit would be located in the water off a pier or a boat tied to a pier and operated from shore. The IAS is transportable and can be used from anywhere within the ROI; however, it is anticipated that operations would be limited to the developed portside waterfront areas.

Under the No Action Alternative, the USCG would continue to conduct safety and security activities at the current level. This section of the EA assesses potential environmental consequences associated with the Proposed Action. Potential impacts are addressed in the context of the scope of the Proposed Action as described in Section 2.0 and in consideration of the potentially affected environment as characterized in Section 3.0.

4.2 Water and Sediment Quality

Due to the use of zinc anodes, the Proposed Action would have minor adverse impacts on water and sediment quality. However, the release of zinc would be transient and well below EPA standards.

4.2.1 Significance Criteria

Significant effects on water and sediment quality are those that measurably threaten human health, result in persistent degradation of the environment, or cause an existing Federal, state, or local water quality criterion or a federally recognized international criterion to be exceeded.

4.2.2 Potential Impacts

The IAS underwater support structure would have sacrificial zinc anodes attached to it to prevent metal corrosion from occurring due to immersion in salt water. These sacrificial anodes, which are

99.3 percent zinc with trace amounts of cadmium and aluminum required for activation, are identical to those used by most commercial and recreational vessels operating in U.S. coastal waters. Each anode would be preferentially corroded or "sacrificed" by electro-chemical interaction with seawater and metal (USN 2002). As a zinc anode is consumed (oxidized), ionized zinc would be released into the surrounding water.

The zinc discharge is characterized by a mass flux since the release is directly to the water (USN 2002). The Navy calculated the zinc discharge for a permanently mounted system similar to the IAS using a mass flux equation of zinc that is released to the water. This equation used a known zinc anode dissolution rate of 7.4×10-6 pounds (lb) zinc per lb anode per hour and the volume of water associated with the system. The zinc anodes installed on the Navy's system totaled approximately 27 lbs. The Navy determined that the anodes used by this system could potentially result in a combined maximum receiving water zinc concentration of 28 micrograms per liter (µg/L). It is expected that the concentration combined maximum discharge concentration form the zinc anodes used by the IAS would be less than, and certainly would not exceed, 28 µg/L. This value is well below EPA's Criterion Continuous Concentration (CCC) for zinc in saltwater, which is 81 µg/L (USEPA 2002).

The fate and behavior of zinc in water is associated with salinity. In river water, zinc is predominantly present in the dissolved form (UK Marine SAC undated). In estuaries, where concentrations of suspended particles are greater, a greater proportion of the zinc is adsorbed to suspended particles (UK Marine SAC undated). In low salinity areas of estuaries, zinc can be mobilized from particles by microbial degradation of organic matter and displacement by calcium and magnesium (UK Marine SAC undated). In the turbidity maximum, zinc associated with suspended sediment will be deposited with flocculated particles where it can accumulate particularly in anaerobic sediments (UK Marine SAC undated). In seawater, much of the zinc is found is dissolved form as inorganic and organic complexes (UK Marine SAC undated). The IAS would not be deployed or installed in any one place permanently; therefore, any localized accumulation of zinc in sediments related to the IAS zinc anodes would be minimal.

As a shore based, water dependent system, the IAS may be deployed in developed areas mapped as floodplain. The mobile nature and small size of the IAS would have no impact on flood conditions.

Due to the use of zinc anodes, the Proposed Action would have minor adverse impacts on water and sediment quality. However, the release of zinc would be transient and well below EPA standards.

4.2.3 No Action Alternative

Under the No Action Alternative, existing conditions would remain as is, and the IAS would not be established. The USCG would maintain the current level of protection, which has been determined to be insufficient. Under this alternative, the USCG would be unable to detect underwater threats to the U.S. coast. This would not meet the USCG's requirement to provide maritime security and would possibly make it easier for an attack to occur. Significant adverse impacts would be expected should this alternative be selected due to the increased risk of a terrorist attack. Terrorists could strike at military or commercial facilities in these ports creating the potential for impacts to the environment. The impacts could be immediate or long lasting. Recovery time would be dependent on the severity and extent of the impact.

4.3 Noise

Based on the scope of this EA, implementation of the Proposed Action would not result in an increase in existing ambient airborne noise levels in the ROI. Airborne noise impacts, if any, are expected to be minor and short in duration. Based on the rapid attenuation of the SPL of the land-based and portable sonars and the short term, transient use of the portable sonar and incidental use of the underwater loud hailer, the IAS is expected to have only minor adverse impacts on the existing ambient waterborne noise levels at locations where it is deployed.

4.3.1 Significance Criteria

Airborne Noise

The significance criteria of impacts related to airborne noise are normally based on a combination of land use compatibility guidelines and factors related to duration and magnitude of the noise level, including the time of day and the conduct of operations. The EPA has determined a DNL of 75 dB at 50 feet as an acceptable noise level to protect public health and welfare (PWIA 2002).

Waterborne Noise

The significance of waterborne (underwater) noise impact criteria is normally is based on the duration and magnitude of the noise level. The significance criteria of impacts of waterborne noise on marine organisms and other biological resources are discussed in Section 4.3.

4.3.2 Potential Impacts

Airborne Noise

The IAS would be transported by MSST boats and trucks that are currently operating; therefore, the components of the IAS are not expected to create an increase in existing ambient airborne noise levels within the ROI. Based on the scope of this EA, any adverse effects resulting from implementation of the Proposed Action are expected to be minor and short in duration.

Waterborne Noise

The IAS has three components that would cause waterborne noise in the ROI, the land-based sonar, the portable sonar and the underwater loud hailer. The vehicle guidance system is not a source of underwater sound; it uses radio frequencies and a GPS to direct the MSST vessel to the underwater threat. The MSST vessels are a source of waterborne noise and vehicle traffic; however, these effects were analyzed in the MSST. No new vessels will be added to the MSST fleet as a result of the Proposed Action. Therefore, an analysis of the vessels is beyond the scope of this EA. Table 4-1 presents the frequency and source levels for each of these sources.

Generally, sound waves with low frequencies propagate further than those with high frequencies (MAN undated). The land-based and portable sonars emit high frequency signals that would attenuate very rapidly in the water column (USN 2002).

The underwater loud hailer is a low frequency sound source that would not attenuate rapidly. The underwater loud hailer is similar to commercially available diver recall systems that use submerged speakers to transmit human voices underwater and would be used only in the event of a suspected threat. The loud hailer would allow security team members to contact unidentified swimmers/divers before further action is considered. For example, it would be used to convey warning messages to swimmers/divers that have entered a restricted area. Its use would normally be of very short duration (a maximum of a few minutes) and in close proximity to the suspected threat. Under normal circumstances continuous use of the loud hailer would not exceed the exposure duration thresholds outlined in Section 4.4.1.

The Navy estimated attenuation of the SM 2000 in the Environmental Assessment for Installation and Operation of an Underwater Swimmer Detection System at Naval Base Coronado California (USN 2002). This estimate indicates that the SPL of the land-based sonar would drop below 180 dB

Table 4-1. Frequency and Source Level for each Source of Waterborne Noise in the IAS

Source	Frequency (kHz)	Source Level (dB/µPA/m)
Land-based sonar	90	206
Portable sonar	1,000-1,800	202
Underwater Loud Hailer	0.2-20	180 at 1kHz

Source: KSM undated, APL undated Hanot, 2003 OTS 2002, Lubell undated
dB—decibels
kHz—kilohertz

between 3 and 100 meters, possibly less, and, therefore, this area would be considered the area of potential influence (USN 2002). Because the frequency of the portable sonar is higher, it is likely that the SPL associated with it would attenuate to 180 dB in a shorter distance (i.e., it would have a smaller area of potential effect). The portable sonar would not be running continuously; it would only be deployed under suspicion of a potential threat. Because the underwater loud hailer emits signals that are shorter in frequency, the area of potential effect would be greater. However, the underwater loud hailer is similar to commercially available diver recall systems that use submerged speakers to transmit human voices underwater and would be used only in the event of a suspected threat. The loud hailer would allow security team members to contact unidentified swimmers/divers before further action is considered. For example, it would be used to convey warning messages to swimmers/divers that have entered a restricted area. Its use would normally be of very short duration (a maximum of a few minutes) and in close proximity to the suspected threat. Under normal circumstances continuous use of the loud hailer would not exceed the exposure duration thresholds outlined in Section 4.4.1.

Based on the rapid attenuation of the SPL of the land-based and portable sonars, the short term, transient use of the portable sonar and incidental use of the underwater loud hailer, the IAS is not expected to have more than minimal adverse impacts on the existing ambient waterborne noise levels at locations where it is deployed.

4.3.3 No Action Alternative

Under the No Action Alternative, existing conditions would remain as is, and the IAS would not be established. The USCG would maintain the current level of protection, which has been determined to be insufficient. Under this alternative, the USCG would be unable to detect underwater threats to the U.S. coast. This would not meet the USCG's requirement to provide maritime security and would possibly make it easier for an attack to occur. Significant adverse impacts would be expected should

this alternative be selected due to the increased risk of a terrorist attack. Terrorists could strike at military or commercial facilities in these ports creating the potential for impacts to the environment. The impacts could be immediate or long lasting. Recovery time would be dependent on the severity and extent of the impact.

4.4 Biological Resources

4.4.1 Significance Criteria

This section evaluates the potential impacts on the biological resources under the Proposed Action and the No Action Alternative. The significance of impact onto biological resources is based on the following four factors:

- Importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource
- Proportion of the resource that would be affected relative to its occurrence in the region
- Sensitivity of the resource to proposed activities
- Duration of ecological ramifications

Impacts on biological resources are significant if species or habitats of high concern are adversely affected over relatively large areas such that the function and value of the resource is impaired. Impacts are also considered significant if disturbances cause reductions in the population size or distribution of a species of importance to the extent that the effect could endanger the continued existence of that species. Federal- and state-listed threatened or endangered species, if present, will be discussed under each biological resource area.

There is no scientific consensus regarding absolute thresholds for significance regarding noise (MMS 2000a). Assessment of potential risk to a particular species must often begin with an estimate of frequency ranges to which the animal's hearing is most sensitive, and the associated thresholds. The range of sounds produced by a species is generally associated with ranges of good hearing sensitivity, but many species exhibit good hearing sensitivity well outside the frequency range of sounds they produce (USN 2002). Scientific research indicates that best hearing thresholds for marine vertebrates range from about 60 dB re 1 μPa at 0.1 kHz to about 40 dB re 1 μPa at 10 kHz.

Protected and Sensitive Habitats

Impacts on protected and sensitive habitats would be significant if IAS deployment resulted in in any of the following outcomes:

- Temporary or permanent loss of any sensitive, protected, or reporting area habitat
- Direct loss or damage of any sensitive resource within a protected or sensitive habitat
- Excessive noise or presence from normal USCG activities that lessens the habitat value

Wetlands

The significance of impacts on wetland resources is proportional to the functions and values of the wetland complex. Wetlands function as habitat for plant and wildlife populations, including threatened and endangered species that depend on wetlands for their survival. Wetlands are valuable to the public for flood mitigation, storm water runoff abatement, aquifer recharge, water quality improvement, and aesthetics. Quantification of wetlands functions and values, therefore, is based on the ecological quality of the site as compared with similar sites, and the comparison of the economic value of the habitat with the economic value of the proposed activity that would modify it. A significant adverse impact on wetlands would occur should either the major function or the value of the wetland be significantly altered. Significance criteria for impacts on seagrass are based on the temporary or permanent loss of seagrass and the impact on species that seagrass in the ROI supports.

Marine Mammals and Sea Turtles

Impacts on marine mammals and sea turtles would be significant if IAS deployment resulted in any of the following outcomes:

- Permanent loss of habitat.
- Temporary loss of habitat that adversely affects a substantial number of a specific species.
- Direct loss (take) of a substantial number of a specific species. Take may include MMPA Level A harassment, defined as pursuit, torment, or annoyance that has the potential to injure.
- Permanent loss of breeding areas.
- Temporary loss of breeding areas that adversely affects a substantial number of a specific species.
- Substantial interference with movement of any resident species that results in the inability of the species to survive.

Known hearing sensitivities for marine mammals are presented in Table 4-2. Hearing capabilities have not been tested in many marine mammals (i.e., baleen whales). In these cases, information on hearing is based on the frequencies of sounds produced, behavioral observations, anatomical evidence, and extrapolations from what is known about other marine mammal hearing.

Table 4-2. Reported Hearing Sensitivities, Vocalizations, and Transmissions of Marine Mammals

Common Name	Scientific Name	Frequency Range (kHz)	Dominant Frequencies (kHz)
Baleen whales (Suborder Mysticeti)		0.01–30 [c]	0.02 [c]
Gray whale	*Eschritus robustus* adult calve	0.02–2 [a] 0.01–20 [a]	0.2–1.2 [a] 3.4–4 [a]
Humpback whale	*Megaptera novaeangliae*	0.03–10 [a]	0.12–4 [a] 0.04–16 [c]
Fin whales	*Balaenoptera physalus*	0.014–0.75 [a]	0.02–0.04 [a] 0.01–0.015 [c]
Minke whale	*Balaenopetera acuturostrata* clicks moans, clicks, and grunts	0.04–20 [a] 3.3–20 [a] 0.06–0.14 [a]	0.06–0.14 [c] NA NA
Northern right whale	*Eubalaena glacialis*	< 0.4 [a]	NA 0.01–0.015 [c]
Blue whale	*Balaenoptera musculus* Atlantic Pacific	 NA 0.01–0.39 [a]	0.01–0.02 [a] 0.016–0.024 [a] 0.01–0.015 [c]
Toothed Whales (Suborder Odontoceti)		0.2–100; up to 200 [b]	8–150
Killer whale	*Orcinus orca* whistles clicks	 0.26–20 [a] 1.2–25 [a]	 2–5.9 [a]
Bottlenose dolphin	*Tursiops truncatus* whistles clicks	 0.8–24 [a] 1–150 [a]	 3.5–14.5 [a] 30–130 [a]
Manatees (Family Trichechidae)		NA	NA
West Indian Manatee	*Trichechus manatus*	2.5–5 [a]	NA
Earrless seals (Family Phocidae)		**1–50 [b]**	**NA**
Harbor seals	*Phoca vitulina richardsi*	< 0.1–>150 [a]	< 0.1–40 [a]
Eared seals, seal lions, walruses (Otarridae)		**0.1–1 ; 36–40 [b] (changes with depth)**	**2–17[b]**
California sea lion	*Zalophus californianus*	0.25—4 [a]	0.5 – 4 [a]
Northern Fur seal	*Callorhinus Ursinus*	NA	NA
Gray seal	*Halichoerus grypus*	0.1–40 [a]	0.1–10 [a]
Northern elephant seal	*Mirounga angustirostris*	NA	< 1 [b]
Weasels, otters, and skunks (Family Mustelidae)		NA	NA
Southern sea otter	*Enhydra lutris nereis*	NA	3–5 [a]

Source: Nowacek et al. 2003; NPS 2003, NRC 2003

Notes: [a] Based on frequencies used in communication and echolocation
[b] Tested hearing sensitivity
[c] Predicted hearing sensitivity
NA = Not Available

Marine mammal hearing varies among species; however, as a group, marine mammal hearing ranges from 0.01 – 200 kHz. Broad generalizations can be made about groups of marine mammals. For example, most toothed whales (odontocetes) hear well in ultrasonic ranges, with functional hearing from 0.2 to 100 kHz, but some toothed whales are able to hear frequencies as high as 200 kHz. Models indicate that baleen whales (mysticetes) have lower frequency hearing and cannot hear frequencies above 20-30 kHz (NRC 2003). It is predicted that blue, fin, and bowhead whales are predicted to hear best in the range of 0.01 to 0.015 kHZ and Bryde's whales vocalize using frequencies ranging from 0.07-0.245 kHz. Most pinnipeds have peak hearing sensitivities between 1 and 20 kHz. Sea otters vocalize in the range of 3 to 5 kHz and manatees vocalize in the range of 2.5 to 5 kHz.

Bottlenose dolphins use echolocation signals to hunt for prey and avoid obstacles. Underwater hearing ranges reported for bottlenose dolphins range from 1 to 150 kHz (USN 2002). Bottlenose dolphins are reported to produce sounds such as snapping, whistling, barking, and clicking (USN 2002). Whistles were reported at 0.8 to 24 kHz with dominant frequencies of 3.5 to 14.5 kHz (NRC 2000). Clicks used for echolocation were reported at 1 to 150 kHz with dominant frequencies between 30 and 130 kHz and an SPL of up to 213 dB (USN 2002, NRC 2000). Similarly, minke whales use sounds such as grunts, pings, zips, ratchets, and clicks to communicate and echolocate (USN 2002). The frequency range of these sounds is reported to be 0.04 to 2 kHz with dominant frequencies at 0.06 to 0.14 kHz (NRC 2000).

General consensus is that 180 dB re 1 μPa is the threshold above which some potentially serious problems in marine mammals' hearing capability could occur (USN 2002). The Navy concluded that a sound in the 0.1 to 0.5 kHz frequency band could cause serious problems in marine mammal's hearing capability from the following exposures:

- 1 second at 204 dB
- 1 minute at 186 dB
- 20 minutes at 172 dB
- 8 continuous hours at 160 dB

Little is known about sea turtle hearing. Past research based on brain physiology indicates that sea turtles are able to hear sounds with frequencies ranging from 0.08 to 2 kHz, with maximum sensitivity levels reported between 0.1 and 0.8 kHz and 0.3 and 0.4 kHz (Lenhardt 1994, NRC 2003). Loggerhead sea turtles are capable of hearing sound from 0.25 to 1 kHz (Moein *et al.* 1994). Preliminary data from continuing research on green sea turtles indicates that they are capable of

hearing tones ranging from 0.1 kHz to 0.5 kHz, with a threshold between 107 dB and 119 dB at 0.2 kHz and a threshold between 121 dB and 131 dB at 0.4 kHz (ONR undated).

Fish

Potential fisheries impacts would primarily affect fish populations by altering or impacting fish habitat. Impacts on fisheries would be significant if deployment of the IAS resulted in any of the following outcomes:

- Overfishing resulting in the species' inability to survive.
- Permanent loss of breeding areas, EFH or HAPC.
- Substantial interference with movement of any resident species or migration of anadromous species (i.e., species that migrate from saltwater to freshwater).

Hearing sensitivity is known for approximately 100 of the 250,000 extant species of fish (NRC 2003). The hearing sensitivity of fish (including sharks and rays) ranges from 0.5 to 200 kHz; however, most fish detect sound within 0.5 to 1 kHz (NRC 2003, Popper 2003). It has been reported that clupeid fish, such as that Gulf menhaden (*Clupea harengus*) and American shad (*Alosa sapidissima*), respond to frequencies as high as 180 kHz, with thresholds for American shad around 155 dB SPL and for Gulf menhaden around 180 dB SPL (Mann *et al.* 2001). These species can also hear within lower frequencies ranges (below 10 kHz), with thresholds being around 120 to 130 dB SPL. Other clupeid fish that occur in the ROI, such as anchovies (*Anchoa spp.*) and sardines (*Sardinella spp. and Harengula spp.*), can detect sounds up to 4 kHz (Mann *et al*. 2001). Known hearing sensitivities for fish are presented in Table 4-3.

Coastal and Other Birds

Impacts on coastal and other birds, particularly diving birds, would be significant if IAS deployment resulted in any of the following outcomes:

- Harassment of nesting and foraging areas resulting in the species' inability to survive
- Permanent loss of breeding areas and habitat
- Substantial interference with migration
- Studies with other (non-coastal) species indicate that birds are sensitive to low frequency sounds in air. However, there is little data on seabird hearing or underwater hearing, and there is no evidence that seabirds are affected by changes in underwater sound (USN 2001).

1 **Table 4-3. Hearing Sensitivities, Vocalizations, and/or Transmissions of Marine Fish**

Order	Description of Order	Common Name	Scientific Name	Hearing Range (kHz)
Perciformes (Note: This is such a diverse group of fishes that they are broken down by taxonomic family)	Tunas (Scombridae)	Yellowfin	*Thunnus albacares*	0.05 – 1.1 (best hearing from 0.3 – 0.5)
		Kawakawa	*Euthynnus affini*	0.05 – 1.1 not as sensitive as *Thunnus albacares*
	Damselfishes (Pomacentridae)	Various species	*Eupomacentrus spp.*	0.1 – 1.2 (best hearing from 0.3 – 0.6)
		Goby	*Gobius niger*	0.1 – 0.16
		Perch	*Perca fluviatilis*	0.1 – 0.16
		Pike perch	*Lucioperca Sandra*	0.1 – 0.16
	Serranidae (Sea basses)	Red hind	*Epinephalus guttatus*	0.1 – 1 (best hearing from 0.2 – 0.4)
	Snappers	Schoolmaster	*Lutjanus apodus*	0.1 – 1 (best hearing from 0.2 – 0.6)
	Drums and croakers (Sciaenidae)	Chubbyu	*Equetus acuminatus*	0.1 – 2 (best hearing from 0.2 – 1)
	Grunts (Haemulidae)	Blue-striped grunt	*Haemulon sciurus*	*0.75 – 1.0 (best hearing from 0.75 – 0.8)*
	Wrasses (Labridae)	Blue-head wrasse	*Thalossoma birasciatum*	*0.1 – 1.2 (best hearing from 0.2 – 0.4)*
		Tautog	*Tautoga onitis*	*0.1 – 0.16*
Batrachoidformes	Toadfish	Oyster toadfish	*Opsanuss tau*	*0.1 – 0.16*
Scorpaeniformes	Searobbins	Slender searobin	*Prionotus scitulus*	*0.1 – 0.6 (best hearing from 0.3 – 0.4)*
Pleuronectiformes	Flounders, sole, halibut	Plaice	*Pleuronectes platessa*	*0.03 – 0.2*
		Dab	*Limanda limanda*	*0.1 – 0.2*
Anguilliformes	Eels	American eel	*Anguilla anguilla*	*up to 0.3*
Abuleiformes	Bonefishes	Bonefish	*Abula vulpes*	*0.05 – 0.7*
Salmoniformes	Salmon, trout, char	Atlantic salmon	*Salmo salar*	*0.03 – 0.4*
Gadiformes	Cods, hakes, haddock, pollock	Atlantic cod	*Gadus morhua*	*0.01 – 0.5*
		Haddock	*Melanogrammus aegelfinus*	*0.03 – 0.47*
		Pollock	*Pollachius pollachius*	*0.03 – 0.47*
		Ling	*Molva molva*	*0.04 – 0.55*
Lamniformes	Pelagic sharks	Bull shark	*Carcharhinus leucas*	*0.1 – 1.4*
		Lemon shark	*Negaprion brevirostris*	*0.1 – 0.64*
		Hammerhead shark	*Sphyrna lewini*	*0.25 – 0.75*
Heterodontiformes	Bullhead sharks	Horn shark	*Heterdontus francisci*	*0.02 – 0.16*
		Freshwater catfish	*Ictalurus nebulosus*	*0.05 – 3 +*

Sources: Mann et al. 2003; NRC 2003; Plachta and Popper 2003; Popper 2003; Tavolgal et al. 1981

4.4.2 Potential Impacts

The Proposed Action could result in minor adverse impacts to protected and sensitive habitat and/or marine organisms. These impacts would be due primarily to the release of zinc into the water column or the creation of waterborne noise. The impacts of zinc will be discussed in this section; the potential impacts of noise on various marine organisms will be discussed in subsequent sections.

Like most commercial and recreational vessels operating in U.S. coastal waters, the IAS system's underwater support structure uses sacrificial zinc anodes to prevent its metal parts from being corroded by the surrounding seawater. As these anodes are consumed (oxidized) by saltwater (zinc is non-reactive in freshwater), ionized zinc is released into the surrounding water column. Due to this release of zinc, the IAS could cause minor adverse impacts to marine habitat or organisms.

Elevated levels of zinc in saltwater can cause adverse effects on algae, invertebrates, and fish (UK Marine SAC undated), but chronic toxicity data regarding zinc are highly variable and difficult to interpret. Zinc can bioaccumulate in benthic organisms and this bioaccumulation could affect fish, birds, marine mammals, and other marine organisms that feed on sediments and benthic organisms (UK Marine SAC undated, Irwin 1997, NRC 2003). However, the release of zinc that would result from the proposed action is estimated to be less than 28 parts per billion (ppb), which is below the EPA's CCC for zinc of ppb in saltwater (USEPA 2002). Additionally, the IAS would not be deployed or installed in any one place permanently; therefore, localized accumulation of zinc in sediments and seagrass would be minimal.

Protected and Sensitive Habitats

IAS operation could impact protected and sensitive habitats by creating increased levels of waterborne noise. However, based on the scope of this EA and the purpose of and operating specifications for the IAS (i.e., port security), it is unlikely that the IAS would be operated in protected and sensitive habitats. Therefore, more than minimal adverse impacts on sensitive habitats or protected habitats are not expected as a result of the Proposed Action.

Wetlands

Based on the scope of this EA and the purpose of and operating specifications of the IAS, there would be no loss of wetlands. Therefore, there are no anticipated adverse impacts on wetlands or protected areas because of the Proposed Action.

Marine Mammals

Although three species of non-endangered or non-threatened marine mammals may use Galveston Bay, the operation of the IAS is not expected to result in more than minor adverse impacts on marine mammal hearing. In the process of evaluating potential impacts to marine mammals associated with the IAS, USCG sent a letter to the National Oceanographic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries) requesting an informal consultation for the proposed IAS project to be stationed in San Pedro under Section 7 of the Endangered Species Act. On February 12, 2004 NOAA Fisheries responded with a letter suggesting that the project might need authorization under the MMPA and suggested contacting NOAA Headquarters Protected Resources staff. Over the next seven months USCG diligently attempted to get NOAA Fisheries to provide their issues related to our compliance with the MMPA. To date USCG has received no formal response from NOAA Fisheries on this issue. In August 2004, NOAA Fisheries provided USCG unofficial suggestions for protocols that could be used to avoid and/or minimize potential impacts to marine mammals. To the extent practical, USCG has integrated these suggestions into this assessment and the operating procedures for the IAS. The consultation letters and USCG's official response to NOAA Fisheries summarizing the efforts to engage NOAA Fisheries with regard to the MMPA are presented in Appendices B and E.

Animals only respond to noise if they can hear it. Responses may be short or long-term and will vary depending on factors such as hearing sensitivity; past exposure to the noise; individual noise tolerance; age, sex, and presence of offspring; the loudness of the noise; whether the sound is stationary or moving; sound transmission; and location (e.g., confinement) (NRC 2003). Short-term responses of marine mammals to audible sound include swimming away from the source; changes in surfacing, breathing, and diving patterns; changes in group composition; and changes in vocalization (NRC 2003). Long-term responses include habitat abandonment or increased tolerance of a noise. Noise impacts may be direct or indirect. Noise can cause direct acoustic trauma, as evidenced by the fact that mid-frequency (1-10 kHz) sonar have been implicated as the cause of mass strandings of beaked whales (NRC 2003). More general increases in ambient noise can reduce an animal’s ability to hear important sounds, such as communication or the sound of prey (NRC 20032). Additionally, ocean noise can indirectly affect marine mammals by changing prey distribution.

IAS operation is not expected to result in more than minor adverse noise-related impacts on marine mammals. The only species that are expected to be capable of detecting the 90 kHz signal transmitted by the land-based sonar are the toothed whales (odontocetes), including bottlenose

dolphins, and harbor seals (true seals). Similarly, it is unlikely that any marine mammals are capable of hearing the 1,000 and 1,800 kHz signal produced by the portable sonar.

The signals transmitted by both sonar are higher than the known hearing sensitivities for other marine mammals, which are generally reported to be between 0.04 kHz and 150 kHz. Given the rapid attenuation of high frequency sonar signals, and the fact that the signals are imperceptible to most marine mammals within the ROI, potential adverse impacts to marine mammals associated with the land-based and portable sonars would be temporary and minor.

The underwater loud hailer operates from 0.2 to 20 kHz, which is within the perceptible range of many marine mammals. The underwater loud hailer operates at a source level of 180 dB re 1 µPA per meter at 1 kHz with a depth range of 6 to 25 ft. Although exposure to noise levels above 180 dB re 1 µPA could potentially impact marine mammal hearing capability (USN 2002), the underwater loud hailer is expected to be a temporary and transient source of noise. The use of the underwater loud hailer would be short-term and incidental (i.e., would only be utilized a number of minutes to attempt contact with a detected threat). The underwater loud hailer is similar to commercially available diver recall systems that use submerged speakers to transmit human voices underwater and would be used only in the event of a suspected threat. The loud hailer would allow security team members to contact unidentified swimmers/divers before further action is considered. For example, it would be used to convey warning messages to swimmers/divers that have entered a restricted area. Its use would normally be of very short duration (a maximum of a few minutes) and in close proximity to the suspected threat. Under normal circumstances continuous use of the loud hailer would not exceed the exposure duration thresholds outlined in Section 4.4.1. Additionally, the use of the sonar system could alert officials to any marine mammals that might be in the area, allowing for mitigating circumstances. Therefore, use of the underwater loud hailer is not expected to cause significant long-term or short-term impacts to marine mammals.

The USCG initiated informal consultation with NOAA Fisheries in a letter dated 12 December 2003 from Captain K.G. Quigley (G-OPD) to Ms. Georgia Cranmore (Assistant Regional Administrator for Protected Resources, NOAA Fisheries Southeast Region) and has actively sought input from NOAA Fisheries throughout the NEPA process. Eight months of correspondence regarding consultation for this EA is documented with the draft letter presented in in Appendix E from Rear Admiral J..W. Underwood (G-OP), to Laurie Allen (Director, Office of Protected Resources NOAA Fisheries). Despite these efforts, as of February 21, 2005 the USCG has not received formal comments from NOAA Fisheries regarding this EA.

The results of this EA indicate that deployment of the IAS in Galveston, Texas would not have significant impacts on marine mammals. The relevant criteria that leads to this conclusion are that: the IAS will be monitored at all times during operation; the shore-side location of the IAS sound head limits potential encounters by marine mammals; the limited geographic zone of potential impact (within 200 meters from the sound head); the limited and tightly controlled use of the underwater loud hailer and the response boat sonar (use only where a specific threat is identified); the intended use of the IAS is for protecting existing developed shore-side infrastructure, i.e., no intended operation in open ocean environments; and the temporary nature of the IAS mission at any specific location.

Although no formal comments on the EA have been received from NOAA Fisheries to date, in response to informal comments in an e-mail dated August 23, 2004 from Sarah Hegadorn (NOAA HQ) to Bill Nagy (USCG)) regarding potential IAS impacts on marine mammals, the USCG incorporated project modifications to the standard operating procedures for the IAS, if the tactical situation permits (see Section 2.3). The modifications, as suggested by NOAA HQ, and accepted by the USCG include the following protocols to avoid and/or minimize adverse effects to protected marine species:

- USCG personnel would monitor the IAS at all times of deployment.
- If IAS is deployed and marine mammal activity is noted which may approach or enter the 160 dB isopleth (200 meter safety zone) of the land-based sonar, the operational commander would take prudent measures to avoid impacting the wildlife which, situation permitting, may include shutting down the system.
- When conducting training activities, if marine mammals are detected which may approach or enter the 160 dB isopleth (200 meter safety zone) of the land-based sonar, the system shall be shutdown until the marine mammals have left the IAS 200 meter safety zone.
- As there is no warm-up period for the land-based sonar, the safety zone would be visually monitored for 20 minutes prior to turning on the device to be sure it is clear of marine mammals. If the land-based is started during nighttime, night vision devices would be used to monitor the safety zone.
- Barring exceptional circumstances that require such deployment, the IAS would not be placed in a location such that it interferes with obvious marine mammal throughways, or prevents entry or exit of marine mammals into and out of an area, e.g., the mouth of a bay or narrow choke-points, where sonar may deter them from traveling through or by.
- Continued implementation of existing USCG programs to guard against adverse impacts to marine mammals, e.g., the Ocean Steward Plan.

The results of this environmental analysis on the deployment of IAS in the subject areas indicate that IAS would not have a significant impact on marine mammals. Relevant criteria that lead to this

conclusion are: (1) The IAS will be monitored at all times during operation; (2) The shore-side location of the IAS sound head limits potential encounters by marine mammals; (3)The limited geographic zone of potential impact (within 100 meters) from the sound head where the high frequency sonar noise may fall within the hearing range of some marine mammals and fish; (4) The limited and incidental use of the underwater loud hailer and the response boat sonar (use only where a specific threat is identified); (5) The intended use of the IAS is for protecting existing developed shore-side infrastructure, i.e., no intended operation in open ocean environments; and (6) The temporary nature of the IAS mission at any specific location.

Sea Turtles

All five species of sea turtles that occur in the GOM have the potential to occur in the ROI. IAS operation is not expected to result in more than minor adverse impacts on sea turtles. While little information is available on sea turtle hearing, it is known that sea turtle hearing generally ranges from 0.08 to 2 kHz. Therefore, it is expected that the land-based and portable sonars, which operate a frequencies of 90 Hz and higher, would be imperceptible to sea turtles. Given the rapid attenuation of these high frequency sonar signals, the actual area of potential effect would be very small (i.e., less than 100 meters). The lower frequency noise generated by the underwater loud hailer might be within the perceptible range of sea turtles; however, it is expected to be a temporary and transient source of noise and should present no significant impacts to sea turtles. The underwater loud hailer is similar to commercially available diver recall systems that use submerged speakers to transmit human voices underwater and would be used only in the event of a suspected threat. The loud hailer would allow security team members to contact unidentified swimmers/divers before further action is considered. For example, it would be used to convey warning messages to swimmers/divers that have entered a restricted area. Its use would normally be of very short duration (a maximum of a few minutes) and in close proximity to the suspected threat. Under normal circumstances continuous use of the loud hailer would not exceed the exposure duration thresholds outlined in Section 4.4.1. IAS operation could result in minor behavioral disruptions in individual sea turtles, but it is not expected to have more than temporary and minor adverse effects.

Additionally, the use of the sonar could alert officials to any sea turtles that might be in the area, allowing for mitigating circumstances. The USCG has protocols in place for protecting the marine mammals and sea turtles. The USCG's current COMDTINSTs, regulations, and procedures to avoid marine mammals would continue under the Proposed Action. While the purpose of the IAS would

not be to provide marine resource protection and law enforcement, the IAS would continue to comply with USCG living marine resources protection programs, initiatives, and guidance.

Pursuant to Section 7 of the ESA, USCG initiated information consultation with USFWS and NOAA Fisheries on December 12, 3003. USFWS responded with their concerns in a letter dated January 27, 2004. All correspondence relating to the ESA consultation is presented in Appendix B.

Pursuant to Section 7 of the ESA, USCG initiated informal consultation with USFWS and NOAA in December 2003 (Appendix B). NOAA Fisheries responded to the consultation request in a letter dated February 12, 2004. Based on assessment of the IAS specifications and operating procedures as the following protocols will be implemented to avoid and/or minimize adverse effects to protected marine species:

- USCG personnel would monitor the IAS at all times of deployment.
- Under normal circumstances the IAS would be operated only in areas immediately adjacent to established shore-side infrastructure. These areas are not normally associated with sea turtle breeding or nesting sites
- If IAS is deployed and sea turtle activity is noted which may approach or enter the 160 dB isopleth (200 meter safety zone) of the land-based sonar, the operational commander would take prudent measures to avoid impacting the wildlife which, situation permitting, may include shutting down the system.
- When conducting training activities, if sea turtles are detected which may approach or enter the 160 dB isopleth (200 meter safety zone) of the land-based sonar, the system shall be shutdown until the sea turtles have left the IAS 200 meter safety zone.
- As there is no warm-up period for the land-based sonar, the safety zone would be visually monitored for 20 minutes prior to turning on the device to be sure it is clear of sea turtles. If the land-based is started during nighttime, night vision devices would be used to monitor the safety zone.
- Barring exceptional circumstances that require such deployment, the IAS would not be placed in a location such that it interferes with obvious sea turtle throughways, or prevents entry or exit of sea turtles into and out of an area, e.g., the mouth of a bay or narrow choke-points, where sonar may deter them from traveling through or by.

Fish

IAS operation could result in minor adverse impacts on fisheries or EFH, particularly minor behavioral disruptions resulting from the underwater loud hailer and land-based sonar. The portable sonar operates at frequencies higher than most fish species are capable of perceiving. However, the land-based sonar would operate within the perceptible range of some clupeid fishes occurring in the ROI, including the Gulf menhaden, sardines, and anchovies (Table 4-3).

Similarly, the underwater loud hailer operates within perceptible frequencies of some tested fish species. However, the loud hailer is expected to be a transient source of noise and should present no significant impacts to exposed fish. The underwater loud hailer is similar to commercially available diver recall systems that use submerged speakers to transmit human voices underwater and would be used only in the event of a suspected threat. The loud hailer would allow security team members to contact unidentified swimmers/divers before further action is considered. For example, it would be used to convey warning messages to swimmers/divers that have entered a restricted area. Its use would normally be of very short duration (a maximum of a few minutes) and in close proximity to the suspected threat. Under normal circumstances continuous use of the loud hailer would not exceed the exposure duration thresholds outlined in Section 4.4.1.

No federally threatened or endangered fish are known to inhabit the ROI. Three federal species of concern may occur in the ROI, including the sand tiger shark, saltmarsh topminnow, and the goliath grouper. It is unlikely that these species are capable of hearing the land-based or portable sonars. Minor, temporary effects to these species could occur from the incidental use of the underwater loud hailer.

Pursuant to Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act, the USCG initiated an EFH consultation with NOAA Fisheries' Habitat Conservation Division on December 12, 2003. NOAA Fisheries concluded that the proposed action would not have an adverse impact on EFH. Correspondence relating EFH and ESA section 7 consultations is included in Appendix B. Pursuant to Section 7 of the ESA, USCG initiated informal consultation with NOAA Fisheries Protected Resources Division and USFWS, all correspondence related the consultation is presented in Appendix B.

Coastal and Other Birds

Several species of federally endangered or threatened birds (i.e., eastern brown pelican, whooping crane, bald eagle, northern aplomado falcon, Mexican spotted owl, piping plover, Eskimo curlew, interior least tern, and Atwatter's prairie chicken) are known to breed in the Galveston Bay region.

IAS operation is not expected to result in more than minor adverse impacts to coastal and other birds. Localized, short-term increases in waterborne noise could potentially affect coastal birds, particularly diving birds, but diving birds spend relatively minimal time underwater and would only be exposed to short durations of underwater sound. Moreover, the sound produced by the IAS has a high frequency

and may not be perceptible to coastal and other birds. Therefore, IAS-related noise impacts on coastal birds are expected to be minimal.

Waterborne noise may result in an indirect, minor effect on coastal and pelagic diving birds. This conclusion is based on the fact that some species of prey for coast and pelagic diving birds may have the ability to hear the land-based sonar.

Pursuant to Section 7 of the ESA, USCG initiated information consultation with USFWS under on December 12, 3003. USFWS responded with their concerns in a letter dated January 27, 2004. To avoid disturbing brown pelicans and other colonial waterbirds as they nest and rear their young, the USFWS recommends that a minimum distance of 1500 feet be maintained between nesting areas and all project activities from February 15 through September 1. The brown pelican nests on coastal islands, on the ground, and in small bushes and trees (USFWS 2005). The IAS would not be operated in these areas and therefore would not impact brown pelican nesting sites. If the IAS were to be deployed in the vicinity of nesting colonial waterbirds, the operational commander would take prudent measures to avoid and/or minimize impacting the wildlife as permitted by the situation.

Crrespondence relating to the ESA consultation is presented in Appendix B.

4.4.3 No Action Alternative

Under the No Action Alternative, existing conditions would remain as is, and the IAS would not be established. The USCG would maintain the current level of protection, which has been determined to be insufficient. Under this alternative, the USCG would be unable to detect underwater threats to the U.S. coast. This would not meet the USCG's requirement to provide maritime security and would possibly make it easier for an attack to occur. Significant adverse impacts would be expected should this alternative be selected due to the increased risk of a terrorist attack. Terrorists could strike at military or commercial facilities in these ports creating the potential for impacts to the environment. The impacts could be immediate or long lasting. Recovery time would be dependent on the severity and extent of the impact.

4.5 Public Safety

The installation and operation of the IAS would close an identified significant security gap in our nation's strategic ports. Beneficial impacts can reasonably be expected from the Proposed Action.

4.5.1 Significance Criteria

Implementation of the Proposed Action would represent a significant impact to public safety if it were to substantially increase risks associated with Galveston's port security; compromise the safety of MSST personnel, contractors, or the local community; or substantially hinder the USCG's ability to respond to an emergency. Additionally, implementation of the Proposed Action would significantly impact public safety if it were incompatible with safety criteria regarding land use.

Public safety is one of the USCG's primary missions, as the USCG is the prominent overseer of maritime safety in all U.S. waters, including the high seas. The MTS is diverse. Geography, environmental conditions, and the amount and types of vessel traffic are all aspects of the MTS. Since the events of September 11, 2001, the safety of the country's ports and its MTS has received increased scrutiny and concern. Threats facing the national security and well being of the U.S. are neither bi-polar nor symmetrical, meaning the threats aren't always obvious or conventional. Intelligence reports establish a credible underwater threat to U.S. ports and waterways that includes combat swimmers/divers. Operational Commanders responsible for maritime security must have at their disposal underwater capabilities to detect, track, intercept, and interdict, if necessary, a combat swimmer/diver. It is due to these concerns that this Proposed Action is being considered.

The IAS would be able to detect and track a combat swimmer/diver who may or may not be using a propulsion device, whether moving or still, and who may be using either closed or open circuit breathing equipment, at such a range as to maintain general awareness and allow security forces sufficient time to react and counter the threat. The IAS would operate in typical harbor, anchorage, and wharf environments including fresh, salt, and brackish waters, and in air and water temperatures as would typically be expected in an a port/harbor environment.

4.5.2 Potential Impacts

The Proposed Action would increase the USCG's ability to protect critical domestic ports and the MTS from warfare and terrorist attacks. The Proposed Action would afford the USCG the ability to detect and track underwater threats to the U.S. coast. The installation and operation of the IAS would close an identified significant security gap in our nation's strategic ports. Beneficial impacts can reasonably be expected from the Proposed Action.

4.5.3 No Action Alternative

Under the No Action Alternative, the USCG would continue to provide port security at the current level, existing conditions would remain as is, and the IAS would not be established. The USCG would maintain the current level of protection, which has been determined to be insufficient. Under this alternative, the USCG would be unable to detect underwater threats to the U.S. coast. This would not meet the USCG's requirement to provide maritime security and would possibly make it easier for an attack to occur. Significant adverse impacts would be expected should this alternative be selected due to the increased risk of a terrorist attack. Terrorists could strike at military or commercial facilities in these ports creating health and safety hazards for the surrounding populace, impacting appropriate emergency responses, and the potential for impacts to the environment. The impacts could be immediate or long lasting. Recovery time would be dependent on the severity and extent of the impact.

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5. Cumulative Impacts

5.1 Cumulative Impacts Methods

Cumulative impacts are defined as "the impacts that result from the incremental impact of the action, when added to other past, present, and foreseeable future action" (40 CFR 1508.7). Cumulative impacts can result from individually minor but significant collective impacts occurring over a period of time.

5.2 Programs and Projects Identified for Evaluation

Other planned activities within the ROI are identified and briefly discussed in Table 5-1. Projects that are currently in the planning stages, or will not be finalized until further studies have been completed and have no target dates, have been dismissed from further consideration. These projects, if completed, will be concluded at some future unknown date. Based on professional judgment, potential impacts are identified as minor, moderate, or high; and as beneficial or adverse whenever possible.

This cumulative impact analysis considers reasonably foreseeable programs, projects, or policies that may impact or add to IAS operations, or create a significant impact in Galveston and the surrounding areas. For the purposes of this EA, only those resources identified in Section 3 that may be impacted by the Proposed Action will be carried over into the Cumulative Impacts discussions.

Information about on-going and future projects and programs has been identified from internet searches, other NEPA documents, local newspaper articles, and discussions with knowledgeable USCG personnel. Based on professional judgment, potential impacts are identified as minor, moderate, or high; and beneficial or adverse whenever possible.

All projects are identified and briefly discussed below. Projects that are currently in the planning stages, or have been delayed until further studies have been completed and have no target dates, have been dismissed from further consideration. For the purposes of this EA, all identified projects have been deleted from further consideration. These projects, if completed, will be concluded at some future unknown date, long after the IAS has become operational.

Stand up of the MSST. This project includes the stationing of 71 active duty personnel and 33 reservists, the construction of a boat shelter, and the addition of six response boats. The MSST will

Table 5-1. Programs and Projects Evaluated for Potential Cumulative Impacts

Proposed (or Existing) Action	Potential Cumulative Impacts
Stand up of MSST	Minor adverse impacts on some biological resources, minor adverse impacts on existing ambient noise levels, and beneficial impacts on public safety.
Off-shore Service Center (Pelican Island)	Short-term impacts on air, water quality, and essential fish habitats (EFHs) during construction. Potential long-term impacts may be expected from high-frequency operations.
Coastal Erosion Planning and Response Act, various projects	Short-term impacts on air, water quality, and EFHs during replenishment activities.
City of Texas City Terminal Railway Dredging Plan	Short-term impacts on air, water quality, and EFHs during dredging and construction. Potential long-term impacts on air, water quality, and EFHs from frequency of operations.
City of Texas City's Proposed Shoal Point Container Terminal	Short-term impacts on air, water quality, noise, and EFHs during dredging and construction. Potential long-term impacts on air, water quality, noise, and EFHs from frequency of operations.
Port of Houston Authority's Proposed Container/Cruise Terminal	Short-term impacts on air, water quality, and EFHs during dredging and construction. Potential long-term impacts on air, water quality, and EFHs from frequency of operations.
Deepwater Program	Galveston may receive new and/or additional cutters as a result of this Program. The number, types, and time frame are unknown at this time. Additional National Environmental Policy Act USEPA documentation might be required.

improve the security of the existing Port of Galveston and the Intracoastal Waterway, including Texas City and Port Arthur, on an ongoing basis. The MSST will not duplicate existing protective measures, but will provide complimentary, non-redundant capabilities that will be able to close significant readiness gaps.

Offshore Service Center (Pelican Island). This project includes the construction of a new terminal at Pelican Island, which is just off the shore of northeast Galveston Island. This center will offer goods, services, and products required in offshore deepwater drilling operations. Approximately 100 acres will be used. The project has three distinct phases: (1) engineering, marketing, and promotion; (2) construction; and (3) operations. No environmental data has been developed for this project. No permit from the USACE has been published for public comment. As the earliest date for operations is 2010, this project has been deleted from further consideration.

Coastal Erosion Planning and Response Act (CEPRA) various projects. CEPRA is administered by the Texas General Land Office. Potential projects include West Galveston Island and other small projects around the ROI. Although $15 million dollars for projects and related studies has been approved, neither specific projects nor a timetable has been published (GLO 2002).

City of Texas City Terminal Railway Dredging Plan. The City of Texas approved a plan in which the city would serve as a conduit for money from the port to the USACE to pay for dredging. Under the plan, the USACE will do hydrographic surveys of the port, including ships' berths, when it does the survey for the ship channel. The USACE will give the port an estimate of the cost of dredging. No target date has been established for the survey (GCDN 2002).

Deepwater Program. The award for this program was made in July 2002. It is not known at this time, if additional and/or new assets will be added to the Galveston area. It is anticipated that additional NEPA documentation will be required.

City of Texas City's Proposed Shoal Point Container Terminal. An Environmental Impact Statement (EIS) is being prepared by the USACE, Galveston District for the City of Texas City's Proposed Shoal Point Container Terminal. The Proposed Action is to deepen the Texas City Channel in Galveston Bay to 45 feet mean level tide; dredge a turning basin; and develop a six-berth, 400-acre container terminal on Shoal Point, an active dredge material placement area. Wetland impacts would be approximately 14 acres. Approximately 11 million cubic yards of dredged material would be generated by the project. Key issues identified at the scoping meeting included concerns on air quality issues, traffic, channel navigation, and dredged material management. Comments from the public review of the Draft EIS included air quality concerns and general environmental concerns regarding possible impacts on Galveston Bay and the local area. The Final EIS was published in January 2003. In April 2003, the construction permit for the Shoal Point Container Terminal was approved. The project is not expected to be complete until 2016 (USACE 2002a).

ISPort of Houston Authority's Proposed Container/Cruise Terminal. The Proposed Action is to develop a major marine terminal complex on approximately 1,043 acres approximately 30 miles southeast of downtown Houston. This development would include facilities for docking, loading, and unloading container and cruise ships; container storage areas; an intermodal yard; warehousing facilities; and properties available for light-industrial development. Access to the site would be improved for vehicles, trains, and ships. There are 18.3 acres of jurisdictional wetlands on the site. The Draft EIS was published on November 12, 2001. Numerous concerns were raised regarding the

proximity of the proposed project to several residential communities. The major issues seem to be air quality, traffic, noise, aesthetics, dredging, and safety. The Final EIS was released on May 16, 2003 and comments from the public were received until July 16, 2003. The Record of Decision (ROD) is going through the final review process. A decision is expected in three to four weeks. Once the ROD is signed, the permit must be approved by the Texas Coastal Zone Management Program and the Texas Commission on Environmental Quality. If approved, this project is not scheduled for completion until 2023 (USACE 2002b).

5.3 Pertinent Projects

At this time, no current projects or projects that would be simultaneous with the installation and operation of the IAS were identified. The Proposed Action would not add to the severity of any existing projects or projects that would commence during the installation and operation of the IAS.

The Proposed Action constitutes three components that would be additional sources of noises in the Galveston area. The land-based and portable sonars would produce high frequency signals, while the underwater loud hailer would produce low frequency signals. As described in Section 3.2, there are many sources of anthropogenic noise in the Galveston area, most of which emit low frequency signals. The high frequency signals would attenuate very quickly in the water column and would not significantly increase ambient noise levels in the Bay. Potential impacts could occur due to the underwater loud hailer, but it is expected to be a temporary source of noise and would not contribute significantly to ambient noise levels in Bay. The underwater loud hailer is similar to commercially available diver recall systems that use submerged speakers to transmit human voices underwater and would be used only in the event of a suspected threat. The loud hailer would allow security team members to contact unidentified swimmers/divers before further action is considered. For example, it would be used to convey warning messages to swimmers/divers that have entered a restricted area. Its use would normally be of very short duration (a maximum of a few minutes) and in close proximity to the suspected threat. Under normal circumstances continuous use of the loud hailer would not exceed the exposure duration thresholds outlined in Section 4.4.1. Therefore, the cumulative noise impacts associated with the Proposed Action would be negligible.

As discussed in Section 4.2.2, potential impacts of the Proposed Action on water quality may result from the use sacrificial zinc anodes to protect the metal components of the land-based sonar from corroding due to immersion in saltwater. These anodes would be identical or similar in use, composition and degradation rate to the sacrificial anodes used by most of the recreational and commercial boats operating in the coastal waters of the U.S. Because the IAS will be used primarily

in heavily developed port areas, and because the vast majority of boats and underwater infrastructure in these areas already use zinc anodes for corrosion protection, the IAS will not contribute significantly to the adverse cumulative impacts associated with zinc anode corrosion protection systems within the ROI.

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APPENDIX A

AGENCY CORRESPONDENCE

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U.S. Department of Homeland Security
United States Coast Guard

Commandant
United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: G-OPD
Phone: (202) 267-2039
Fax: (202) 267-4278

Ms. Georgia Cranmore
Assistant Regional Administrator for Protected Resources
U.S. Department of Commerce
National Oceanic and Atmospheric Administration F/SER
9721 Executive Center Drive North
St. Petersburg, FL 33072

Subject: Environmental Assessment of the Establishment and Operation of an Integrated Anti-Swimmer System in Galveston, TX

Dear Ms. Cranmore:

The U.S. Coast Guard (USCG) is preparing an Environmental Assessment (EA) for the establishment and operation of an Integrated Anti-Swimmer System (IAS) to be component and co-located with the Maritime Safety and Security Team (MSST) operating out of Galveston, Texas. Preparation of the EA is being conducted in accordance with the National Environmental Policy Act (NEPA) of 1969 (Section 102[2][c]) and its implementing regulations, 40 Code of Federal Regulations, Part 1500. The purpose of the Proposed Action is to increase the USCG's ability to detect, track and interdict, if necessary, potential underwater threats and as a result, protect personnel, ships and property from sabotage and or other subversive acts. This EA does not analyze the impacts from the stand-up and operation of the MSST. Those were already assessed in the Environmental Assessment of the Stand-up and Operation of the Maritime Safety and Security Team (MMST) in Galveston, TX (October 2003) and were found to have no environmental impact.

This EA will address the overall environmental impacts of establishing and operating the IAS including three components that may cause waterborne noise, the Kongsberg SM 2000 sonar (SM 2000), the Dual High Frequency Identification Sonar (DIDSON), and the underwater loud hailer. Table 1 presents the frequency and source levels for each of these sources. The region of influence (ROI) for the Proposed Action and the No Action Alternative is defined as the area in which the IAS would operate under normal conditions. The ROI, presented in Attachment 1, is geographically defined as that area of Galveston Bay and the Galveston Channel including the City of Galveston and the Intracoastal Waterway, from Texas City up the Texas coastline to the border with the state of Louisiana (approximately opposite Port Arthur).

Table 1. Frequency and Source Level for each Source of Waterborne Noise in the IAS

Source	Frequency (kHz)	Source Level (dB)
Kongsberg SM 2000	90	206
DIDSON	1,000-1,800	202
Underwater Loud Hailer	0.5-4	Unknown

In accordance with Section 7 of the Endangered Species Act, as amended, we seek to informally consult with National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) regarding the proposed establishment and operation of the IAS in Galveston, TX. We intend to have the EA stand as our Biological Assessment (BA) for this proposal. In order to fully assess the

potential impacts associated with the Proposed Action on protected resources we are requesting a list of species of concern that occur within the ROI and a list of any additional concerns that NOAA Fisheries may have regarding the potential impacts of the Proposed Action on federally listed species or other marine mammals.

We will also consult with the U.S. Fish and Wildlife Service regarding the presence of threatened and endangered species under their jurisdiction and NOAA Fisheries' Habitat Conservation Division regarding essential fish habitat within the proposed ROI.

We look forward to working with your office on this project. Please send any comments/correspondence to the USCG through one of the following methods:

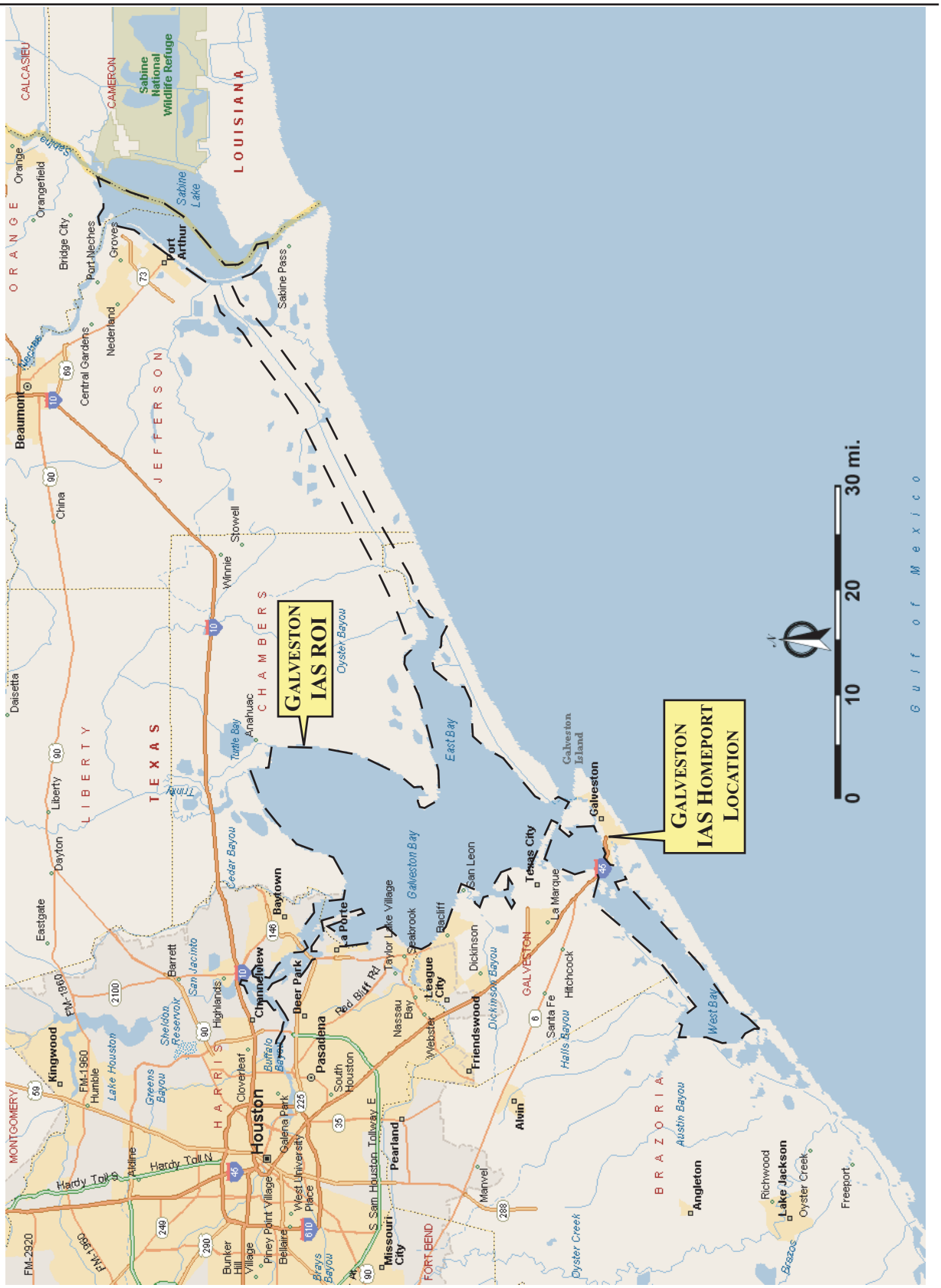
(1) By mail to:
Commandant (G-OPD)
United States Coast Guard
2100 Second Street, SW
Washington, DC 20593
(2) Or, by fax to CWO Jan Walker at (202) 267-4278
(3) Or by E-mail to jwalker@comdt.uscg.mil

Thank you for your assistance. If you have questions about the proposed establishment of the IAS contact CWO Walker at (202) 267-2039 or about the EA contact Ms. Kebby Kelley at (202) 267-6034.

Sincerely,

K. G. QUIGLEY
Captain, U.S. Coast Guard
Chief, Office of Defense Operations

Enclosure



Attachment 1. Region of Influence (ROI) for Galveston Integrated Anti-Swimmer System (IAS)

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, FL 33702
(727) 570-5312, FAX 570-5517
http://caldera.sero.nmfs.gov

FEB 12 2004

F/SER3:KPB

K.G. Quigley, Captain
Commandant (G-OPD)
United States Coast Guard
2100 Second Street, S.W.
Washington, DC 20593-0001

Dear Captain Quigley:

We have reviewed your letter dated December 12, 2003, and associated documents regarding the establishment and operation of an Integrated Anti-Swimmer System (IAS) operating out of Galveston, Texas. You requested a list of the species under the jurisdiction of NOAA Fisheries that may occur in the action area and our comments regarding any potential effects to listed species associated with the proposed project.

Species listed under the Endangered Species Act (ESA) and species of concern under the purview of NOAA Fisheries which may potentially occur in the action area appear in Table 1. Please be informed that in addition to the ESA-listed species and species of concern listed below, there are non-listed marine mammal species present in the region of influence that are protected under the Marine Mammal Protection Act (MMPA). Incidental takes of marine mammals are not authorized through the ESA section 7 process. The IAS may have the potential to result in the acoustic harassment of non-listed marine mammals. Please contact Kenneth Hollingshead of our Headquarters Protected Resources staff at (301) 713-2055 for additional information regarding an MMPA take authorization.

Table 1. Threatened, endangered, or species of concern that potentially occur in the region of influence under consideration. No critical habitat has been designated in the action area.

Common Name	Scientific Name	Status
humpback whale	*Megaptera novaeangliae*	endangered species
fin whale	*Balaenoptera physalus*	endangered species
sei whale	*Balaenoptera borealis*	endangered species
blue whale	*Balaenoptera musculus*	endangered species
sperm whale	*Physeter macrocephalus*	endangered species

hawksbill sea turtle	*Eretmochelys imbricata*	endangered species
leatherback sea turtle	*Dermochelys coriacea*	endangered species
Kemp's ridley sea turtle	*Lepidochelys kempii*	endangered species
green sea turtle[1]	*Chelonia mydas*	threatened species
loggerhead sea turtle	*Caretta caretta*	threatened species
dusky shark	*Carcharhinus obscurus*	species of concern
sand tiger shark	*Odontaspis taurus*	species of concern
night shark	*Carcharinus signatus*	species of concern
speckled hind	*Epinephelus drummondhayi*	species of concern
saltmarsh topminnow	*Fundulus jenkensi*	species of concern
goliath grouper	*Epinephelus itajara*	species of concern
Warsaw grouper	*Epinephelus nigritus*	species of concern

Endangered whales, including the humpback whale, blue whale, and sei whale have been observed occasionally in the GOM. Individuals observed have likely been inexperienced juveniles straying from the normal range of these stocks or occasional transients. Since NOAA Fisheries does not believe that there are resident stocks of these species in the GOM, the potential for interaction between any of the proposed project's activities and these whale species is extremely low.

The main effects of the action on listed species under the purview of NOAA Fisheries pertain to the four acoustic sources and vessel operation proposed to be used for the IAS. The main sources of sound from the proposed operation of the IAS are associated with the following:

1) the Kongsberg SM 2000 sonar;
2) the security Vehicle Acoustic Guidance System (SVAG);
3) the Dual High Frequency Identification Sonar (DIDSON);
4) the Underwater Loud Hailer, and
5) vessel operation

The region of influence in the draft EA is defined as Galveston Bay and the Galveston Channel including the City of Galveston and the Intracoastal Waterway, from Texas City up the Texas

[1]Green turtles are listed as threatened, except for breeding populations of green turtles in Florida and on the Pacific Coast of Mexico, which are listed as endangered.

coastline to the border with the State of Louisiana (approximately opposite Port Arthur). Since the IAS system is portable, this region of influence is defined as the area in which the systems may operate. For determining the possible effects to the species listed in Table 1, the action area should be modeled as the total area that could be ensonified as a result of the operation, and acoustic modeling of the properties from operation of each of the acoustic sources listed above should be completed. Additional consideration should be given to the possible effects of disruption of important behaviors such as feeding; breeding, spawning, or nesting; sheltering; and nursing. These activities may be more vulnerable at certain times of year or in specific areas that are known to be important (e.g., possible avoidance of a sound source in important foraging habitat or offshore of sea turtle nesting beaches). Accurate modeling of the acoustic properties of the sources will allow for a more accurate determination of those possible effects.

In addition to the propagation modeling indicated above, in order for NOAA Fisheries to analyze the effects of the proposed action on ESA-listed species, the following information will be required for interagency consultation pursuant to section 7 of the ESA.

1. Please submit a copy of the EA that analyzes the effects of vessel traffic on protected species that is incorporated by reference into the draft document. This EA is entitled *Environmental Assessment of the Stand Up and Operation of the Maritime Safety and Security Team Galveston, Texas*. This EA should be submitted as part of the proposed action when the USCG requests section 7 consultation under the ESA. If existing measures are in place to avoid interactions between vessels and protected species, please submit them so that they may be considered in the analysis of the effects of the proposed action.

2. Underwater Loud Hailer source level is not given. Also there is no source level nor frequency range given for the SVAG and no indication of duty cycle for each of the sound sources. Source levels, frequency range, duty cycle and/or duration for each source will be needed to assess the propagation and the possible effects of the sounds produced on protected species.

3. Baseline ambient noise levels in the region of influence are required to measure the impact of the IAS in the action area. Please model the distances (isopleths) at which each of the sound sources used will attenuate to ambient levels (frequency and sound pressure level).

4. The draft EA states that the sonar could be used to detect any sea turtles or marine mammals that might be in the area. Please indicate whether the IAS will be monitored by human operators during its operation, or proposed to be used as an automated system. If the IAS is automated, can it be programmed to be automatically power down when non-swimmer targets are detected?

The USCG must also determine if essential fish habitat (EFH) consultation with NOAA Fisheries' Habitat Conservation Division (HCD) is required pursuant to the Magnuson-Stevens Fishery Conservation and Management Act's requirements for EFH consultation (16 U.S.C. 1855 (b)(2) and 50 CFR 600.905-.930, subpart K). If you have any questions about consultation

regarding essential fish habitat for this project, please contact Mr. Rusty Swafford at (409) 766-3699.

Thank you for the opportunity to review your project. We look forward to continued cooperation in protecting threatened and endangered species. For additional questions concerning this letter, please contact Kyle Baker, fishery biologist, at the number above or via e-mail at Kyle.Baker@noaa.gov.

Sincerely,

David Bernhart
Acting Regional Administrator
for Protected Resources

cc: F/SRR42 - Rusty Swafford
F/PR3

File: 1514.22.g.2
Ref. No. I/SER/2003/01587
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U.S. Department of Homeland Security
United States Coast Guard

Commandant
United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: G-OPD
Phone: (202) 267-2039
Fax: (202) 267-4278

Mr. Miles Croom
Assistant Regional Administrator for Habitat Conservation
U.S. Department of Commerce
National Oceanic and Atmospheric Administration F/SER
9721 Executive Center Drive North
St. Petersburg, FL 33072

Subject: Environmental Assessment of the Establishment and Operation of an Integrated Anti-Swimmer System in Galveston, TX

Dear Mr. Croom:

The U.S. Coast Guard (USCG) is preparing an Environmental Assessment (EA) for the establishment and operation of an Integrated Anti-Swimmer System (IAS) to be a component of and co-located with the Maritime Safety and Security Team (MSST) operating out of Galveston, Texas. Preparation of the EA is being conducted in accordance with the National Environmental Policy Act (NEPA) of 1969 (Section 102[2][c]) and its implementing regulations, 40 Code of Federal Regulations, Part 1500. The purpose of the Proposed Action is to increase the USCG's ability to detect, track and interdict, if necessary, potential underwater threats and as a result, protect personnel, ships, and property from sabotage and or other subversive acts. This EA does not analyze the impacts from the stand-up and operation of the MSST. Those were already assessed in the Environmental Assessment for the Stand-Up and Operation of the Maritime Safety and Security Team (MSST) in Galveston, TX (October 2003).

The EA will address the overall environmental impacts of establishing and operating the IAS including three components that may cause waterborne noise, the Kongsberg SM 2000 sonar (SM 2000), the Dual High Frequency Identification Sonar (DIDSON), and the underwater loud hailer. Table 1 presents the frequency and source levels for these sources. The region of influence (ROI) for the Proposed Action and the No Action Alternative is defined as the area in which the IAS would operate under normal conditions. The ROI, presented in Attachment 1, is geographically defined as that area of Galveston Bay and the Galveston Channel including the City of Galveston and the Intracoastal Waterway, from Texas City up the Texas coastline to the border with the state of Louisiana (approximately opposite Port Arthur).

Table 1. Frequency and Source Level for each Source of Waterborne Noise in the IAS

Source	Frequency (kHz)	Source Level (dB)
Kongsberg SM 2000	90	206
DIDSON	1,000-1,800	202
Underwater Loud Hailer	0.5-4	Unknown

We do not believe that the Proposed Action, the establishment and operation of the IAS in Galveston, TX, would have an adverse impact on essential fish habitat (EFH). As such, and in accordance with Section 305(b) of the Magnuson-Stevens Act, as amended, we do not believe an EFH consultation is required at this time. As stated above, we are currently preparing an EA, and we intend to fully assess

the potential impacts associated with the Proposed Action on EFH within the ROI. We are requesting a list of concerns or comments National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) may have regarding the implementation of IAS and its possible impacts on EFH.

We will also consult with the U.S. Fish and Wildlife Service and NOAA Fisheries Protected Resources Division regarding the presence of threatened and endangered species under their respective jurisdictions.

We look forward to working with your office on this project. Please send any comments/correspondence to the USCG through one of the following methods:

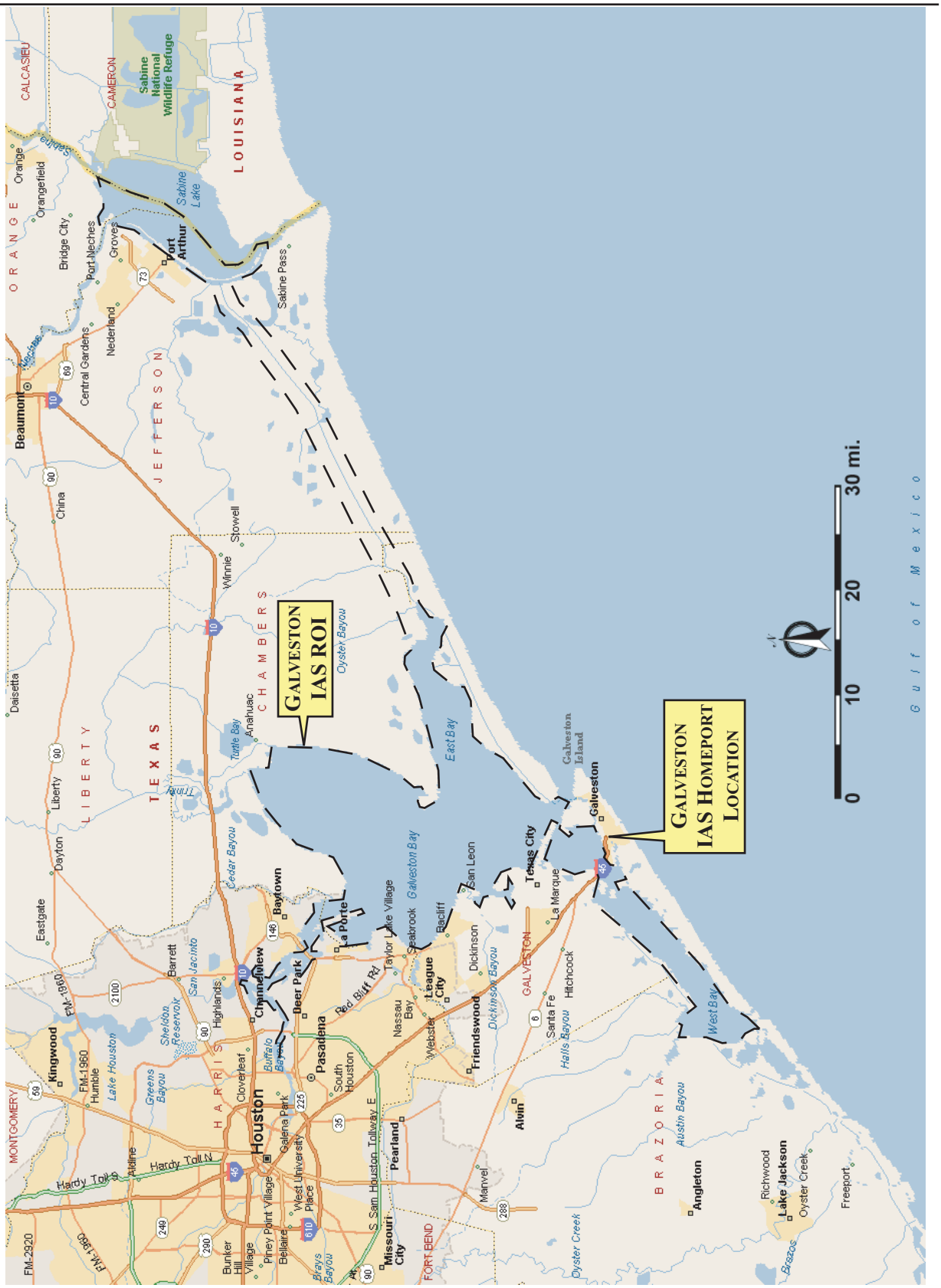
(1) By mail to:
Commandant (G-OPD)
United States Coast Guard
2100 Second Street, SW
Washington, DC 20593
(2) Or, by fax to CWO Jan Walker at (202) 267-4278
(3) Or by E-mail to jwalker@comdt.uscg.mil

Thank you for your assistance. If you have questions about the proposed establishment of the IAS contact CWO Jan Walker at (202) 267-2039 or about the EA contact Ms. Kebby Kelley at (202) 267-6034.

Sincerely,

K. G. QUIGLEY
Captain, U.S. Coast Guard
Chief, Office of Defense Operations

Enclosure



Attachment 1. Region of Influence (ROI) for Galveston Integrated Anti-Swimmer System (IAS)

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9721 Executive Center Drive N.
St. Petersburg, Florida 33702

January 8, 2004

Captain K.G. Quigley
U.S. Coast Guard
2100 Second Street, S.W.
Washington, D.C. 20593-0001

Dear Captain Quigley:

The National Marine Fisheries Service Habitat Conservation Division has reviewed the letter dated December 12, 2003, concerning the proposed establishment and operation of an Integrated Anti-Swimmer System in Galveston, Texas. We concur with Coast Guard's assessment that the proposed action would not have adverse impacts on Essential Fish Habitat (EFH). This satisfies the consultation procedures outlined in 50 CFR Section 600.920, of the regulation to implement the EFH provisions of the Magnuson-Stevens Fishery Conservation and Management Act. Therefore, no further EFH consultation is required for this action.

Finally, the project area is within the known distribution limits of Federally listed threatened species that are under purview of NOAA Fisheries. In accordance with the Endangered Species Act of 1973, as amended, it is the responsibility of the Coast Guard to review its activities and programs and identify actions that may affect endangered or threatened species or their habitat. Determinations involving species under NOAA Fisheries' jurisdiction should be reported to our Protected Resources Division at the letterhead address. NOAA Protected Resources Division can be contacted by telephone at (727) 570-5517. If it is determined that the activities may adversely affect any species listed as endangered or threatened and under NOAA Fisheries purview, then formal consultation must be initiated.

Thank you for your consideration of our recommendations. If we may be of further assistance, please contact Mr. Rusty Swafford of our Galveston Facility at (409) 766-3699.

Sincerely,

Heather D. Young

for Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

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U.S. Department of Homeland Security
United States Coast Guard

Commandant
United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: G-OPD
Phone: (202) 267-2039
Fax: (202) 267-4278

Mr. David Frugè
USFWS-Lafayette, LA
Endangered Species
646 Cajundome Blvd. #400
Lafayette, LA 70506

Subject: Environmental Assessment of the Establishment and Operation of an Integrated Anti-Swimmer System in Galveston, TX

Dear Mr. Frugè:

The U.S. Coast Guard (USCG) is preparing an Environmental Assessment (EA) for the establishment and operation of an Integrated Anti-Swimmer System (IAS) to be a component of and co-located with the Maritime Safety and Security Team (MSST) operating out of Galveston, Texas. Preparation of the EA is being conducted in accordance with the National Environmental Policy Act (NEPA) of 1969 (Section 102[2][c]) and its implementing regulations, 40 Code of Federal Regulations, Part 1500. The purpose of the Proposed Action is to increase the USCG's ability to detect, track and interdict, if necessary, potential underwater threats and as a result, protect personnel, ships, and property from sabotage and or other subversive acts. This EA does not analyze the impacts from the stand-up and operation of the MSST. Those were already assessed in the Environmental Assessment of the Stand-Up and Operation of the Maritime Safety and Security Team (MSST) in Galveston, TX (October 2003) and were found to have no environmental impact.

This EA will address the overall environmental impacts of establishing and operating the IAS including three components that may cause waterborne noise, the Kongsberg SM 2000 sonar (SM 2000), the Dual High Frequency Identification Sonar (DIDSON), and the underwater loud hailer. Table 1 presents the frequency and source levels for these sources. Use of the system will be temporary in nature, used for specific and finite periods of time to protect specific assets. The region of influence (ROI) for the Proposed Action and the No Action Alternative is defined as the area in which the IAS would operate under normal conditions. The ROI, presented in Attachment 1, is geographically defined as that area of Galveston Bay and the Galveston Channel including the City of Galveston and the Intracoastal Waterway, from Texas City up the Texas coastline to the border with the state of Louisiana (approximately opposite Port Arthur).

Table 1. Frequency and Source Level for each Source of Waterborne Noise in the IAS

Source	Frequency (kHz)	Source Level (dB)
Kongsberg SM 2000	90	206
DIDSON	1,000-1,800	202
Underwater Loud Hailer	0.5-4	Unknown

In accordance with Section 7 of the Endangered Species Act, as amended, we seek to informally consult with the U.S. Fish and Wildlife Service (USFWS) regarding proposed establishment and operation of the IAS in Galveston, TX. We intend to have the EA stand as our Biological Assessment (BA) for this proposal. In order to fully assess the potential impacts associated with the Proposed Action on protected

resources we are requesting a list of species of concern that occur within the ROI and a list of any additional concerns that USFWS may have regarding the potential impacts of the Proposed Action on federally listed species.

We will also consult with National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) regarding the presence of threatened and endangered species under their jurisdiction and essential fish habitat within the ROI.

We look forward to working with your office on this project. Please send any comments/correspondence to the USCG through one of the following methods:

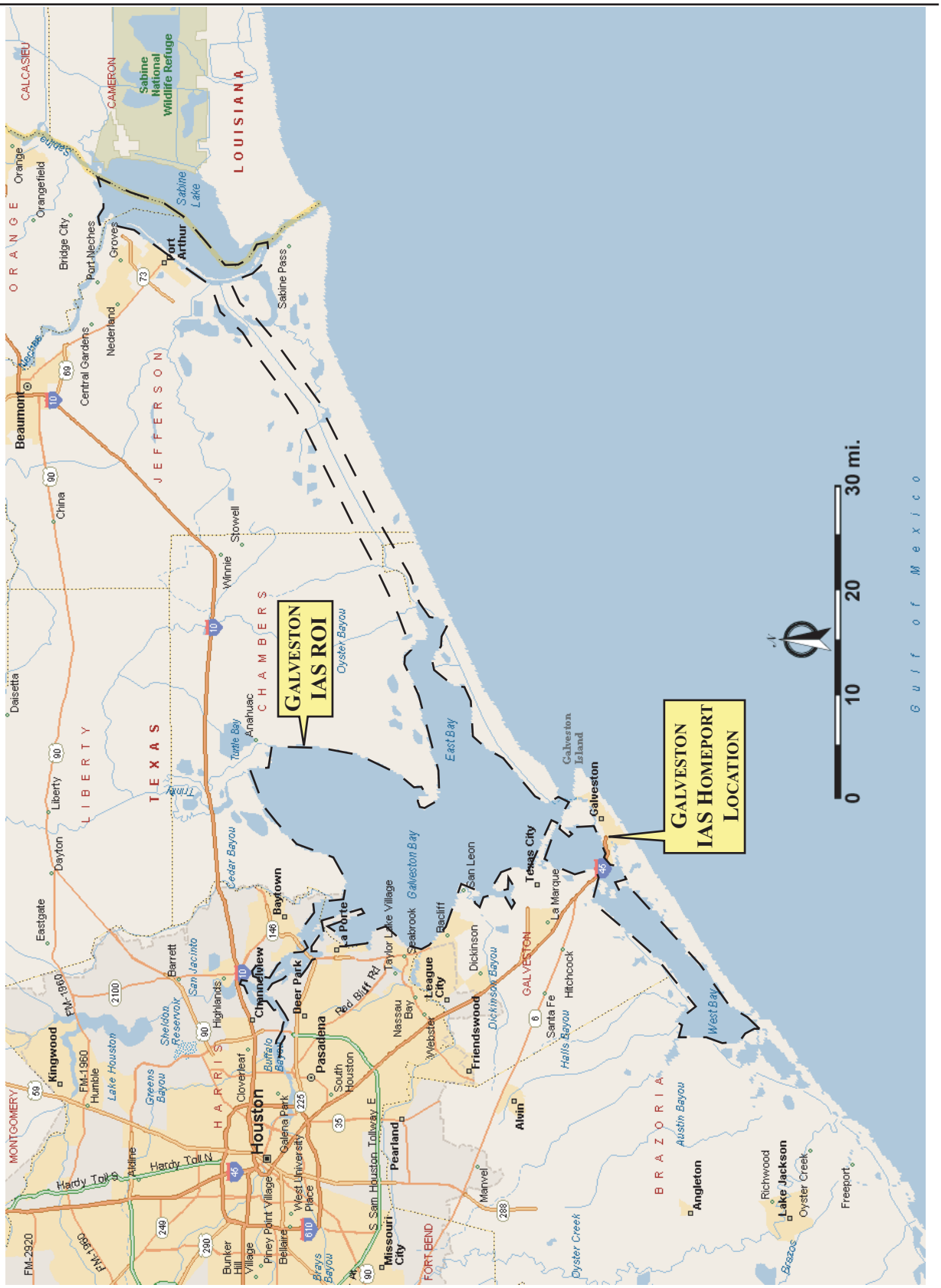
(1) By mail to:
Commandant (G-OPD)
United States Coast Guard
2100 Second Street, SW
Washington, DC 20593
(2) Or, by fax to CWO Jan Walker at (202) 267-4278
(3) Or by E-mail to jwalker@comdt.uscg.mil

Thank you for your assistance. If you have questions about the proposed establishment of the IAS contact CWO Walker at (202) 267-2039 or about the EA contact Ms. Kebby Kelley at (202) 267-6034.

Sincerely,

K. G. QUIGLEY
Captain, U.S. Coast Guard
Chief, Office of Defense Operations

Enclosure



Attachment 1. Region of Influence (ROI) for Galveston Integrated Anti-Swimmer System (IAS)

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Division of Ecological Services
17629 El Camino Real #211
Houston, Texas 77058-3051
281/286-8282 / (FAX) 281/488-5882

January 27, 2004

K.G. Quigley
United States Coast Guard
2100 Second Street, SW
Washington, DC 20593

Dear Mr. Quigley:

This responds to your letter dated December 12, 2003, requesting threatened and endangered species information for the United States Coast Guard (USCG) Environmental Assessment (EA) of the Establishment and Operation of an Integrated Anti-Swimmer System (IAS) in Galveston, Texas. The IAS would be a component of and co-located with the Maritime Safety and Security Team (MSST) operating out of Galveston, Texas. The purpose of the proposed action is to increase the USCG's ability to detect, track, and interdict potential underwater threats.

The EA will address the overall environmental impacts of establishing and operating the IAS, including three components that may cause waterborne noise: the Kongsberg SM 2000 (90 kHz); Dual High Frequency Identification Sonar (DIDSON) (1,000-1,800 kHz); and the Underwater Loud Hailer (0.5-4 kHz). Use of the system would be temporary in nature, and for specific and finite periods of time to protect specific assets. The region of influence is geographically defined as that area of Galveston Bay and the Galveston Channel including the City of Galveston and the Intracoastal Waterway, from Texas City, up the Texas coastline to the Louisiana border.

A review of U.S. Fish and Wildlife Service files and your project map indicates that one of the few remaining populations of the endangered Attwater's greater prairie chicken (*Tympanuchus cupido attwateri)* resides in Galveston County in the area bounded by SH 146, Moses Lake and the levee. Attwater's prairie chickens live in coastal prairie grasslands, and prefer a variety of tall and short grasses in their habitat. Males aggregate in groups called "leks" to attract mates, where they dance and make a booming noise to attract the females. Hens build their nests in tall grass, and the eggs hatch in April or May.

In addition, the endangered brown pelican (*Pelecanus occidentalis)* occurs along the entire Gulf coast of Texas, often found near passes and in proximity to water with high visibility and adequate prey density. Brown pelicans and other colonial waterbirds nest locally on shell islands and sand spits in Galveston Bay, the Galveston Channel, and the Intracoastal Waterway. To avoid disturbing brown pelicans and other colonial waterbirds as they nest and rear their young, we recommend that all project activity stay a minimum of 1500 feet from nesting areas from February 15 to September 1.

Based upon the description of the project area and the region of influence, the IAS would be constructed and operated almost entirely in the submerged coastal waters of Galveston Bay, the Galveston Channel, and the Intracoastal Waterway. You should contact the NOAA Fisheries Protected Resources Division (Georgia Cranmore, 727/570-5312) for information on threatened and endangered species under their jurisdiction, and the Habitat Conservation Division (Rusty Swafford, 409/766-3699) for Essential Fish Habitat and any other concerns NOAA Fisheries may have with the proposed project.

If you have any questions, please contact Catherine Yeargan or Edith Erfling at 281/286-8282.

Sincerely,

Frederick T. Werner
Assistant Field Supervisor, Clear Lake ES Field Office

cc:
National Marine Fisheries Service, Habitat Conservation Division, Galveston, TX
National Park Service, Protected Resources Division, St. Petersburg, FL

U.S. Department of Homeland Security

United States Coast Guard

Commandant
United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: G-OPD
Phone: (202) 267-2039
Fax: (202) 267-4278

Mr. Lawrence Oaks
State Historic Preservation Officer
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711

Subject: Finding of No Historic Properties Affected by US Coast Guard Integrated Anti-Swimmer System in Galveston, Texas.

Dear Mr. Oaks:

The U.S. Coast Guard (USCG) is proposing to establish and operate an Integrated Anti-Swimmer System (IAS) to be co-located with the Maritime Safety and Security Team (MSST) operating out of Galveston, Texas. With the IAS in place, Operational Commanders responsible for maritime security will have at their disposal underwater capabilities to detect, track, intercept, and interdict, if necessary, a combat swimmer/diver. The region of influence (ROI), presented in the attached figure (Enclosure 1), is geographically defined as that area of Galveston Bay and the Galveston Channel including the City of Galveston and the Intercoastal Waterway, from Texas City up the Texas coastline to the border with the state of Louisiana (approximately opposite Port Arthur). The IAS is transportable and would be deployed to provide additional protection for specific targets throughout the region. The IAS is not generally expected to deploy offshore.

Description of the Undertaking - The system will be able to detect and track a potential underwater threat at such a range as to maintain general awareness and allow security forces sufficient time to react and counter the threat. Extensive research and assessment of alternatives has led to the conclusion that an active sonar system is the only existing technology that affords this capability.

No new construction or permanent modifications to existing infrastructure are required for the implementation or operation of the IAS.

The IAS has five primary components: the Kongsberg SM 2000 sonar (SM 2000), the WQX-2 ACAP processor, the Security Vehicle Acoustic Guidance (SVAG) system, the Dual High Frequency Identification Sonar (DIDSON), and the underwater loud hailer.

The SM 2000 is a commercially available underwater sound head that integrates with software developed at Applied Research Laboratory-University of Texas. Under normal circumstances the SM 2000 would be used from either a pier or a vessel made fast to a pier and would be powered from an available connection to the municipal power system. Once the SM 2000 is installed at the mission location, the signal receiving equipment could be housed in a vehicle, Container Express box (a military shipping container), or tent located on a pier. The SM 2000 would be transportable and could be moved anywhere in the Region of Influence (ROI) depending on where additional protection was required.

The DIDSON, the SVAG, and the underwater loud hailer would be located on an MSST Response Boat-Homeland Security (RB-HS). The SM 2000 would provide raw sonar data to the WQX-2 ACAP processor that in turn tracks and classifies the contact, subsequently guiding security forces to the threat. The DIDSON is used by security forces on the RB-HS to positively identify the threat once it has been

localized out to between 20 and 30 yards. The underwater loud hailer would allow security team members to contact unidentified divers before further action is considered. The system described above would allow the capability to detect (with the sonar suite), classify (using the WQX-2 ACAP processor), guide security forces to the contact (using the SVAG), positively identify (using DIDSON), and contact (with loud hailer) potential underwater threats.

It is anticipated that MSST personnel at Galveston, TX would use only one IAS. The IAS is a portable system that would be operated on a temporary as needed basis and would be deployed when and where additional protection for vulnerable infrastructure is necessary. The IAS would be transported by the MSST as part of its mission requirements. It is anticipated that the IAS would be transported approximately 1.5 times per month and would operate approximately 180 days per year.

Area of Potential Affect - The IAS will be co-located with the existing MSST homeport in Galveston TX (Enclosure 1). As discussed above the ROI for the IAS will include Galveston Bay and the Galveston Channel including the City of Galveston and the Intrercoastal Waterway, from Texas City up the Texas coastline to the border with the state of Louisiana (approximately opposite Port Arthur). The IAS is transportable and would be deployed to provide additional protection for specific targets throughout the region. The IAS is not generally expected to deploy offshore.

No Historic Properties Affected - We have applied the Criteria of Effect found in Title 36 Code of Federal Regulations Part 800 to this undertaking and determined that the use and storage of the IAS will have no adverse effect on historic properties. This determination was based primarily on the following conditions. The IAS will be stored at the existing MSST homeport. The findings of the MSST EA found no significant impact on cultural resources. Under normal circumstances, the IAS will be operated at existing developed waterfront areas on a temporary basis. No new construction or permanent modifications to existing infrastructure are required for the implementation or operation of the IAS.

We request your comment on our determination of "no effect" for this undertaking. If you have further questions on the proposed undertaking, please feel free to contact Ms. Kebby Kelley at 202-267-6034. Given the critical importance of the Proposed Action and our tight timeline for implementation, we would greatly appreciate your comments within 15 days from the date your office receives this letter. An Email or fax (fax is 202-267-4219 email: Kkelley@comdt.uscg.mil) of an advance copy would also be helpful if the 15 day time period cannot be met for a final hard copy response.

Thank you in advance.

Sincerely,

M. A. GIGLIO
Commander, U.S. Coast Guard
Chief, Office of Defense Operations
Acting

Enclosure

NO HISTORIC
PROPERTIES AFFECTED
PROJECT MAY PROCEED

By _____
for F. Lawerence Oaks
State Historic Preservation Officer
Date 22 JAN 2004

APPENDIX B

NEWSPAPER ANNOUNCEMENT

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The following Notice of Availability for the Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) was published in the *Galveston County Daily News* on December 15, 2003.

PUBLIC NOTICE

Availability of the Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for the Installation and Operation of an Integrated Anti-Swimmer System, Galveston, TX
US Coast Guard

The United States Coast Guard (USCG) is announcing the availability of the Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for the installation and operation of an Integrated Anti-Swimmer System (IAS) in Galveston, TX. Preparation of the EA is being conducted in accordance with the National Environmental Policy Act (NEPA) of 1969 (Section 102[2][c]) and its implementing regulations at 40 Code of Federal Regulations, Part 1500. The IAS is being fielded to increase the USCG's ability to detect, track, and interdict, if necessary, potential underwater threats and as a result, protect personnel, ships and property from sabotage or other subversive acts. This system will be a component of and co-located with the Galveston, TX Maritime Safety and Security Team (MSST). This EA does not analyze the impacts from the stand-up and operation of the MSST. Those were already assessed in the *Environmental Assessment of the Stand-Up and Operation of the Maritime Safety and Security Tem Galveston, TX* (October 2003) and were found to have no environmental impact.

In addition to the Galveston IAS, the USCG is preparing to install and operate additional IASs in other critical ports around the country. Additional NEPA analysis will be prepared for future ports as necessary.

The EA addresses the overall environmental impacts of the installation and operation of the IAS. The system is expected to operate to a depth of 100 feet and will be used at a range necessary to maintain general threat awareness and allow security forces sufficient time to react and counter the threat. Use of the system will be temporary in nature, used for specific and finite periods of time to protect specific assets. No additional personnel or vehicles will be required to support the IAS. No changes to existing infrastructure will be required. No additional patrols over the numbers assessed in the MSST EA are anticipated except in the event of an elevated threat.

Public input is important in the review of this EA and Draft FONSI. Your concerns and comments regarding the use of this IAS and the possible environmental impacts are important to the USCG. You are invited to submit comments by December 31 using only one of the following means:

(1) By mail to: Headquarters, U.S. Coast Guard
Captain K.G. Quigley
Chief, Office of Defense Operations (G-OPD)
Room 3121
2100 Second Street, SW
Washington, DC 20593

(2) Or, by fax to CWO Jan Walker (202) 267-4278
(3) Or by E-mail to jwalker@comdt.uscg.mil

In choosing among the above means for submitting your comments, please give due regard to the recent difficulties and delays associated with delivery of mail through the U.S. Postal Service to Federal facilities.

Written comments should include your name, address, and the specific port(s) to which the comment relates. The USCG will consider all comments received by December 31, 2003 in the development and completion of this EA.

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APPENDIX C

ENVIRONMENTAL REGULATIONS, LAWS, AND EXECUTIVE ORDERS

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Table C-1. Applicable Laws, Regulations, and Executive Orders [1]

Title, Citation	Summary
Archaeological and Historical Preservation Act, 16 U.S.C. 469	Protects and preserves historical and archaeological data. Requires Federal agencies to identify and recover data from archaeological sites threatened by a proposed action(s).
Clean Air Act, 42 U.S.C. 7401-7671q, as amended	Establishes Federal standards for air pollutants. Prevents significant deterioration in areas of the country where air quality fails to meet Federal standards.
Clean Water Act, 33 U.S.C. 1251-1387 (also known as the Federal Water Pollution Control Act)	Comprehensively restores and maintains the chemical, physical, and biological integrity of the Nation's waters. Implemented and enforced by the U.S. Environmental Protection Agency (USEPA).
Coastal Barrier Resources Act, 16 U.S.C. 3501-3510	Discourages coastal barrier island degradation by prohibiting direct or indirect Federal financial funds (including flood insurance) for development, except for emergency life-saving activities.
Coastal Zone Management Act of 1972, 16 U.S.C. 1451-1464	Establishes a policy to preserve, protect, develop, and where possible, restore and enhance the resources of the Nation's coastal zone. Encourages and assists states in developing and implementing coastal zone management programs.
Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9601-9675 (also known as "Superfund")	Provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment and cleanup of inactive hazardous substances disposal sites. Establishes a fund financed by hazardous waste generators to support cleanup and response actions.
Deepwater Port Act of 1974, 33 U.S.C. 1501-1524	Assigns responsibility to the Secretary of Transportation to license the construction and operation of all oil and natural gas deepwater ports located beyond the U.S. territorial sea and off the U.S. coast.
Endangered Species Act of 1973, 16 U.S.C. 1531-1543, as amended	Protects threatened, endangered, and candidate species of fish, wildlife, and plants and their designated critical habitats. Prohibits Federal action that jeopardizes the continued existence of endangered or threatened species. Requires consultation with U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) Fisheries and a biological assessment when such species are present in an area affected by government activities.

Table C-1. Applicable Laws, Regulations, and Executive Orders [1](continued)

Title, Citation	Summary
Fish and Wildlife Coordination Act, 16 U.S.C. 661-667e, as amended	Authorizes the Secretaries of Interior and Commerce to provide assistance to and cooperate with Federal and State agencies to protect, rear, stock, and increase the supply of game and fur-bearing animals, as well as to study the effects of domestic sewage, trade wastes, and other polluting substances on wildlife. The 1946 amendments require consultation with the USFWS and the state fish and wildlife agencies involving any waterbodies that are proposed or authorized, permitted or licensed to be impounded, diverted or otherwise controlled or modified by any agency under a Federal permit or license.
Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. 1801-1883, as amended	Establishes regional fisheries councils that set fishing quotas and restrictions in U.S. waters. Requires Federal agencies to consult with NOAA Fisheries on all actions (authorized, funded, or undertaken) that might adversely affect essential fish habitat.
Marine Mammal Protection Act of 1972, 16 U.S.C. 1361-1389, 1401-1407, 1538, 4107	Establishes a moratorium on the taking and importation of marine mammals. Prohibits harassing, hunting, capturing, collecting, or killing of marine mammals or attempting such actions. Requires permits for taking marine mammals. Requires consultations with USFWS and NOAA Fisheries if impacts on marine mammals are possible.
Marine Protection, Research, and Sanctuaries Act of 1972, 33 U.S.C. 1401-1445	Regulates dumping of materials into ocean waters. Provides a permitting process to control ocean dumping of dredged materials. Establishes the marine sanctuaries program.
Maritime Transportation Security Act of 2002, Pub. L. 107-295	Extends the Deepwater Port Act application to include facilities and operations related to natural gas.
Migratory Bird Treaty Act, 16 U.S.C. 703-712	Implements various treaties for protecting migratory birds; the taking, killing, or possession of migratory birds is unlawful.
National Environmental Policy Act of 1969, 42 U.S.C. 4321-4370e, as amended	Requires Federal agencies to use a systematic approach when assessing environmental impacts of government activities. Proposes an interdisciplinary approach in a decision-making process designed to identify unacceptable or unnecessary impacts to the environment.
National Historic Preservation Act, 16 U.S.C. 470-470x-6	Requires Federal agencies to consider the effect of any federally assisted undertaking or licensing on any district, site, building, structure, or object eligible for inclusion, or listed in the National Register of Historic Places (NRHP). Provides for the nomination, identification (through NRHP listing), and protection of significant historical and cultural properties.

Table C-1. Applicable Laws, Regulations, and Executive Orders [1](continued)

Title, Citation	Summary
National Marine Sanctuaries Act, 16 U.S.C. 1431 *et seq.*	Authorizes the Secretary of Commerce to designate national marine sanctuaries based on statutory criteria and stipulated factors to be considered by the Secretary as a basis for designation. Stipulates consultation requirements with various Federal agencies, Congressional committees, state agencies and regional fishery councils.
Natural Gas Act of 1938, 15 U.S.C. 717	Designates the Federal Energy Regulatory Commission—an independent agency within the Department of Energy—to regulate the transmission and sale of natural gas for resale in interstate commerce.
Natural Gas Pipelines and Safety Act of 1968 and Hazardous Liquid Pipeline Safety Act of 1979, as amended, 49 U.S.C. 601	The Natural Gas Pipelines and Safety Act of 1968 authorizes the Department of Transportation to regulate pipeline transportation of natural (flammable, toxic, or corrosive) gas and other gases as well as the transportation and storage of liquefied natural gas (LNG). The Hazardous Liquid Pipeline Safety Act of 1979 authorizes the Department of Transportation to regulate pipeline transportation of hazardous liquids (crude oil, petroleum products, anhydrous ammonia, and carbon dioxide). Both of these Acts have been recodified as 49 U.S.C. Chapter 601.
Noise Control Act of 1972, 42 U.S.C. 4901-4918	Establishes a national policy to promote an environment free from noise that jeopardizes health and welfare. Authorizes the establishment of Federal noise emissions standards and provides relevant information to the public.
Nonindigenous Aquatic Nuisance Prevention Control Act of 1990, 16 U.S.C. 4701-4751	Establishes aquatic nuisance species.
Northwest Atlantic Fisheries Convention Act of 1995, 16 U.S.C. 5601-5610	Implements provisions of international conventions and establishes regulatory framework.
Occupational Safety and Health Act of 1970, 29 U.S.C. 651-678	Establishes standards to protect workers, including standards on industrial safety, noise, and health standards.
Outer Continental Shelf Lands Act of 1953, 43 U.S.C. 1331-1356, as amended	Defines the Outer Continental Shelf as all submerged lands lying seaward of State coastal waters that are three miles offshore. Delegates leasing authority to the Secretary of the Interior to promulgate regulations in an effort to reduce waste and conserve natural resources.

Table C-1. Applicable Laws, Regulations, and Executive Orders [1](continued)

Title, Citation	Summary
Port and Waterways Safety Act, 33 U.S.C. 1221-1232	Sets boat operating and towing safety requirements and established enforcement provisions. Authorizes the U.S. Coast Guard (USCG) to establish vessel traffic service/separation schemes for ports, harbors, and other waters subject to congested vessel traffic.
Resource Conservation and Recovery Act, 42 U.S.C. 6901-6992k	Establishes requirements for safely managing and disposing of solid and hazardous waste and underground storage tanks.
Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, July 14, 1982, 47 FR 30959 (6/16/82), as supplemented	Requires Federal agencies to consult with state and local governments when proposed Federal financial assistance or direct Federal development impacts interstate metropolitan urban centers or other interstate areas.
EO 12898, *Environmental Justice*, February 11, 1994, 59 FR 7629 (2/16/94), as amended	Requires certain Federal agencies, to the greatest extent practicable permitted by law, to make environmental justice part of their missions by identifying and addressing disproportionately high and adverse health or environmental effects on minority and low-income populations.
EO 13089, *Coral Reef Protection*, June 11 1998, 64 FR 232 (12/3/99)	Mandates that all Federal agencies whose actions may affect U.S. coral reef ecosystems (1) identify their actions that may affect U.S. coral reef ecosystems; (2) use their programs and authorities to protect and enhance the conditions of such ecosystems; and (3) to the extent permitted by law, ensure that any actions they authorize, fund, or carry out will not degrade the conditions of such ecosystems. Federal agencies shall, subject to the availability of appropriations, provide for the implementation of measures needed to research, monitor, manage, and restore affected ecosystems, including measures reducing impacts from pollution, sedimentation, and fishing.
EO 13148, *Greening the Government Through Leadership in Environmental Management*, April 21, 2000, 65 FR 24595 (4/26/00)	Designates the head of each Federal agency to ensure that all necessary actions are taken to integrate environmental accountability into agency day-to-day decision making and long-term planning processes, across all agency missions, activities, and functions. Establishes goals for environmental management, environmental compliance, right-to-know (informing the public and their workers of possible sources of pollution resulting from facility operations) and pollution prevention, and similar matters.
EO 13175, *Consultation and Coordination with Indian Tribal Governments*, November 6, 2000, 65 FR 67249 (11/09/00)	Requires Federal agencies to establish an accountable process that ensures meaningful and timely input from tribal officials in developing policies that have tribal implications.

Table C-1. Applicable Laws, Regulations, and Executive Orders [1](continued)

Title, Citation	Summary
EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, January 10, 2001, 66 FR 3853 (1/17/01)	Requires each agency to ensure that environmental analyses of Federal actions (required by the National Environmental Policy Act or other established environmental review processes) evaluate the effects of actions and agency plans on migratory birds, emphasizing species of concern. Agencies must support the conservation intent of migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities, and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions.
EO 11593, *Protection and Enhancement of the Cultural Environment*, May 13, 1971, 36 FR 8921 (5/15/71)	Requires all Federal agencies to locate, identify, and record all cultural resources, including significant archaeological, historical, or architectural sites.

[1] This table only reflects those laws and EOs that may reasonably be expected to apply to the Proposed Action and alternatives.

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APPENDIX D

USCG OCEAN STEWARD; PROTECTED LIVING MARINE RESOURCES PROGRAM; AND PARTICIPATION IN THE MARINE SANCTUARIES PROGRAM

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U.S. Department of Transportation
United States Coast Guard

Commandant
United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol G-OPL-4
Phone: (202) 267-2041
FAX: (202) 267-4082

16214
SEP 28 2000

LETTER OF PROMULGATION

From: Commandant
To: Distribution

1. Protecting our nation's natural resources is one of the Coast Guard's five strategic goals. Along with Maritime Safety, Maritime Security, Maritime Mobility, and National Defense, Protection of Natural Resources is one of the basic reasons the taxpayers fund the Coast Guard each year. Hence, it is one of the outcomes to which our entire organizational effort – programs, policies, and assets – should be dedicated. In our Strategic Plan 1999, I defined the Protection of Natural Resources Strategic Goals as "the elimination of environmental damage and natural resource degradation associated with all maritime activities." A vital aspect of achieving this goal is helping the nation recover and maintain healthy populations of marine protected species. OCEAN STEWARD is our strategic plan for making that happen.

2. OCEAN STEWARD provides the emphasis operational commanders, training commands, and administrative staffs need to prioritize and execute this increasingly important mission. The core idea behind OCEAN STEWARD is the premise that all of us, as members of the Coast Guard, have a responsibility to be good stewards of the ocean. If we adhere to this premise as individuals, then the Coast Guard, as an organization, will make great progress toward achieving OCEAN STEWARD's objectives.

3. As we enter the 21st century, our nation is becoming increasingly concerned about the ocean and the state of its living marine resources. Coast Guard leadership in protecting marine species, however, is nothing new; it dates back as far as the Fur Seal Act of 1897. The Coast Guard remains committed to continuing that tradition of leadership, and OCEAN STEWARD is your guide in this important endeavor.

JAMES M. LOY

Encl: (1) OCEAN STEWARD, Protected Living Marine Resources Strategic Plan

Dist: CG LANTAREA (A, Am, Ao), CG PACAREA (P, Pm, Po), CG DISTRICTS (d, m, o), CG ACADEMY, CG INSTITUTE, CG TRACEN Yorktown, CG TRACEN Cape May, CG TRACEN Petaluma, CG PACAREA TRATEAM, CG RFTC Cape Cod MA, CG RFTC Charleston SC, CG RFTC New Orleans LA, CG RFTC Kodiak AK, CG R&DC

COMMANDANT'S PREAMBLE

The Coast Guard's Strategic Plan 1999 states the nation's waterways and their ecosystems are vital to our economy and health. This is why we made the protection of natural resources, specifically the elimination of environmental damage and natural resource degradation associated with maritime activities, one of our five strategic goals, and made enforcing the federal regulations that result in all living marine resources achieving healthy, sustainable populations one of our performance goals. We already have formal plans in place to help us achieve some of these goals, particularly in the areas of pollution response and fisheries law enforcement. However, if we are to fully achieve our protection of natural resources strategic goal, we must become more involved in the efforts to recover and maintain our nation's marine protected species and the habitats on which they depend.

In recent years, there has been a dramatic increase in public and governmental concern about the state of our oceans and their living resources. Evidence of this includes:

- Increasing fishery management measures designed to reduce bycatch of non-targeted species, such as turtle excluder devices (TEDs), fixed-net pingers, and bycatch reduction devices (BRDs).
- Rising conflicts between advocates for species protection and resource users, such as those existing between Steller sea lion protection advocates and Bering Sea/Gulf of Alaska pollock fishers, and between northern right whale protection advocates and New England fixed gear fishers.
- The recent formation of federal and state government task forces to protect coral reefs, northern right whales, Pacific salmon, and other endangered species.
- National Marine Fisheries Service Report to Congress (1999) concluding, of the 230 stocks for which the status can be determined, 98 are overfished and five are approaching overfished - an increase from 86 overfished stocks in 1997 and 90 in 1998.
- Fisheries closures and restrictions in the Gulf of Maine and the West Coast that have had a devastating economic impact on groundfish fleets.
- Increasing litigation against government agencies (including the Coast Guard) by organizations trying to influence marine resource management policy.
- Funding for the Lands Legacy Initiative, which included $27 million to protect ocean and coastal resources in FY 2000 and a request for $266 million for FY 2001.
- The recent signing, by President Clinton, of Executive Order 13158, strengthening and expanding the nation's system of marine protected areas (MPAs).

The Coast Guard already has effective, coordinated strategies for enforcing our nation's fisheries management regulations, protecting the marine environment from oil pollution, and responding to maritime disasters. However, our approach to marine protected species (MPS), specifically those species and geographic areas that are protected under the Endangered Species Act, the Marine Mammal Protection Act, the National Marine Sanctuaries Act, or similar regulations or executive orders, is less clearly defined. Problems resulting from this include:

- Initial delay in establishing a coordinated plan for accomplishing assigned Atlantic Protected Living Marine Resources Initiative (APLMRI) tasks.

- Difficulty in addressing potential conflicts between high-speed craft and marine protected species in New England.
- Low funding priority for funding assessments to address the impact Coast Guard operations have on marine protected species throughout the Pacific Area.
- Inconsistency in handling cross-directorate MPS issues such as working with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) on marine mammal protection initiatives and responding to the Coral Reef Initiative (Executive Order 13089).
- Working level frustration with lack of guidance for dealing with endangered species lawsuits, creation of Memorandums of Understanding (MOU) with NMFS, potential regulation of high-speed craft and whale watch industry vessels, and other MPS issues.

A robust ocean environment is essential to our nation's prosperity, and healthy populations of marine protected species are essential to maintaining a robust ocean environment. Just as protecting our water and air became top national priorities during the last decades of the 20th century, protecting our oceans is becoming a top priority of the 21st century. In the coming years, the nation will look for leaders to exercise responsible stewardship of our ocean resources. The Coast Guard is stepping forward and embracing this role, it is one of the most important roles we will ever undertake.

Ocean Steward Purpose

The purpose of Ocean Steward is to help the Coast Guard achieve its strategic goal Protection of Natural Resources and its performance goal of enforcing federal regulations that result in all living marine resources achieving healthy, sustainable populations. Ocean Steward provides a clearly defined strategy for our role in helping the nation recover and maintain healthy populations of marine protected species; it captures the things we are already doing and provides a comprehensive list of objectives we can achieve if we are provided the necessary resources. Ocean Steward complements our fisheries enforcement strategic plan, Ocean Guardian. Together, Ocean Steward and Ocean Guardian provide a roadmap for the Coast Guard's efforts in ensuring our nation's waterways and their ecosystems remain productive by protecting all our nation's living marine resources from degradation.

Coast Guard Strategic Goal: Protection of Natural Resources

Eliminate environmental damage and natural resource degradation associated with all maritime activities

The nation's waterways and their ecosystems are vital to our economy and health. If the United States is to enjoy a rich, diverse and sustainable ocean environment, then we must halt the degradation of our ocean's natural resources associated with maritime activities. This includes ensuring our country's marine protected species are provided the protection necessary to help their populations recover to healthy, sustainable levels. Providing adequate protection will require the United States to enact and enforce a wide range of regulations to govern marine resource management and use. Ocean Steward will enable the Coast Guard, as the nation's primary at sea law enforcement agency, to develop and enforce those regulations necessary to help recover and maintain our country's marine protected species. Moreover, Ocean Steward will ensure the Coast Guard is viewed as a leader in regional, national and international efforts to protect the nation's marine ecosystems.

Ocean Steward Vision Statement

The Coast Guard will be a leader in the effort to recover and maintain our nation's marine protected species

OCEAN STEWARD MISSION STATEMENT

We will enforce and comply with marine protected species regulations, work with other agencies and organizations to develop appropriate regulations for marine protected species recovery, and publicize our efforts to gain the support and resources necessary to fully implement Ocean Steward

The Coast Guard will implement a formal MPS strategy, Ocean Steward, with a clear, focused vision. We will educate and train our members to make certain every individual understands that stewardship of the ocean environment is a fundamental part of their duty. We will use existing enforcement authorities, and seek new authorities as necessary, to help reduce the risks of extinction and recover marine protected species populations. We will conduct our own operations so as to minimize our impact on marine protected species. We will assess the impact on marine protected species when developing both internal and external regulations and policies. We will work closely with other federal, state and local governments, as well as environmental and research organizations, to carry out the nation's MPS policies. We will inform the public of both the importance of the mission and the ways in which they can help lessen the impact of human activities on marine protected species. We will widely publicize our strategy and results to inform policymakers and the public of the value of our MPS efforts.

GUIDING PRINCIPLE

We are Stewards of the Ocean

The guiding principle behind Ocean Steward is instilling in every member of the Coast Guard the belief that each individual is a steward of the ocean. This concept must be promoted throughout the entire organization. Our training commands – Training Center Cape May, the Coast Guard Academy, Training Center Yorktown, Training Center Petaluma, and the Regional Fisheries Training Centers – should produce graduates who understand and believe preservation of marine protected species is a fundamental Coast Guard responsibility. Our boarding officers and marine inspectors should know, and want to know, what marine protected species exist in their AORs, the regulations that exist to protect them, and how his or her actions can promote species recovery. Our operations and marine safety units should know, and want to know, the concerns of federal, state and local officials, and should work cooperatively with them. Our stations, cutters and marine safety offices should distribute appropriate educational literature. At every opportunity Coast Guard personnel should let the public know we are on watch protecting their oceans and waterways, and inform them of what they can do to help eliminate the degradation of natural resources associated with maritime activities. Our deck watch officers, aircrews and coxswains should be able to recognize the marine protected species they are likely to

encounter and report sightings to interested organizations. Our staff officers and port operations personnel should ensure, and want to ensure, recovery of marine protected species is taken into account when making policy decisions, and they should prioritize the workloads of their personnel to reflect this emphasis. In short, every member of the Coast Guard must think of himself or herself as a steward of the ocean. Committing to that, both organizationally and individually, we will enable us to reach our overarching Protection of Natural Resources strategic goal.

OCEAN STEWARD STRATEGIES

Raise the Profile of the MPS Mission: We will raise the profile of the MPS mission to the status of missions such as maritime drug interdiction, marine pollution prevention and fisheries enforcement.

Obtain Necessary Resources and Authorities: We will prioritize existing resources, use existing authorities, and seek additional resources and authorities as necessary to implement Ocean Steward.

Partner with Other Agencies: We will work closely with other agencies and organizations involved in the preservation and recovery of marine protected species to eliminate redundancy, and provide a clear link between enforcement and management.

Publicize Our Efforts: We will stress the importance of the Coast Guard's role as part of a comprehensive management scheme and highlight our successful efforts to the public.

Each of these strategies contains sets of near, mid, and long-term objectives. Near-term objectives are those that can be achieved without a major reallocation of resources. Mid-term objectives require addition resources or a significant reallocation of resources. Long-term objectives are those objectives that will require institutional changes such as seeking additional authorities or creation of program offices.

STRATEGY: RAISE THE PROFILE OF THE MPS MISSION

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1. DISCUSSION

If the Coast Guard is to be truly committed to protecting the ocean and its resources, then, in the eyes of our own people, recovery of marine protected species must be just as important as traditional missions such as maritime drug interdiction, marine pollution prevention, and fisheries enforcement. We must go beyond development of single initiatives in response to pressure or crisis. We should approach MPS issues with the same proactive, integrated, long-term strategy we use for addressing counterdrug operations, fisheries law enforcement, and commercial vessel safety. Every member of the Coast Guard must know it is part of our job to help recover and maintain our marine

protected species, just as they know it is our job to rescue those in distress. If we understand this concept individually, we will certainly convey that image organizationally.

2. Key Objectives

a. Near Term

1) Incorporate MPS issues into CG performance planning.	G-CCS
2) Develop Area and District MPS operating and enforcement guidance.	G-O/Areas/ Districts
3) Emphasize area specific MPS issues in the curriculum of all 5 Regional Fisheries Training Centers (RFTC).	G-O/G-W/ Areas/RFTCs
4) Identify ways to increase CG Auxiliary participation in MPS mission.	G-O
5) Identify ways to increase focus on MPS issues in Sea Partners program.	G-M
6) Measure the effectiveness of current MPS initiatives such as compliance with the Mandatory Ship Reporting System (MSR) and manatee speed zone regulations.	G-O
7) Designate MPS points of contact (POC) at HQ/Areas/Districts, and create a CG network for information flow on MPS issues.	G-O/Areas/ Districts

b. Mid Term

1) Increase Endangered Species Act/Marine Mammal Protection Act enforcement pulse ops during critical seasons.	G-O/Areas/ Districts
2) Ensure current and potential MPS missions (patrol of remote coral reefs, removal of derelict fishing gear, assisting in disentanglement of whales, etc.) are included in Deepwater decision making process.	G-O
3) Increase CG participation in environmental cleanup events such as the Center for Marine Conservation's annual International Coastal Clean Up.	G-M/G-O
4) Incorporate MPS mission into curriculum of all entry-level and accession training programs (e.g., Officer Candidate School, the Academy, Cape May, and Civilian Indoctrination).	G-W
5) Incorporate MPS issues into International Maritime Officers Course and Mobile Training Teams.	G-CI
6) Designate MPS POC at appropriate CG units.	Districts
7) Include MPS guidance in Maritime Law Enforcement Manual updates.	G-O
8) Include MPS guidance in Marine Safety Manual updates.	G-M

c. Long Term

1) Create HQ cross-directorate MPS office.	G-M/G-O
2) Incorporate MPS questions into Servicewide Examinations.	G-W
3) Add MPS material to appropriate A School curricula (e.g., BM, QM, and MST).	G-W
4) Add MPS material to appropriate C School curricula (e.g., Boarding Officer Course, Boarding Team Member Course, and Marine Safety Petty Officer Course).	G-W

STRATEGY: OBTAIN NECESSARY RESOURCES AND AUTHORITIES

1. DISCUSSION

As national sentiment builds for increasing the protection of our oceans, the Coast Guard should be at the top of the list of agencies that the public demands to be adequately funded. We should reinforce this by documenting our need for, and requesting, the additional resources required to meet the increasing enforcement and regulatory demands in the oceans environment. The public must view the Coast Guard as a leader in preserving our oceans and their protected species. When it is the right thing to do, we should seek to expand our enforcement and regulatory roles, and not shy away for fear of acquiring additional mandates or becoming the target of legal action. If we can be leaders in maritime search and rescue, drug interdiction and pollution prevention, then we can also become leaders in the recovery of marine protected species.

2. KEY OBJECTIVES

a. Near Term

1) Request funding for implementation of Ocean Steward through annual budgeting and resource allocation processes.	G-I/G-M/ G-O/G-
2) Include resource hour requests for implementation of Ocean Steward in input to the annual Operational Guidance letter.	G-O/Areas
3) Assess the need for more enforcement authority to protect resources of various marine protected areas and sanctuaries.	G-I /G-M/ G-O
4) Monitor and evaluate effectiveness of the Mandatory Ship Reporting System (MSR).	G-M/G-O
5) Monitor R&D efforts to develop new technologies for marine mammal detection and avoidance in order to plan for possible acquisition of feasible technologies.	G-O/G-S

b. Mid Term

1) Develop better measures of effectiveness for MPS enforcement efforts.	G-O
2) Support Resource Proposals that address requirements for MPS activities.	G-CCS
3) Allocate resources required to implement Ocean Steward in the annual Operational Guidance letter.	G-O
4) Propose statutory changes and new regulations to improve CG ability to support the nation's MPS objectives.	G-L/G-M/ G-O

c. Long term

1) Consider seeking expanded authority for regulation of vessels in order to protect marine protected species.	G-L/G-M/ G-O

STRATEGY: PARTNER WITH OTHER AGENCIES AND ORGANIZATIONS

1. DISCUSSION

Our leadership should seek opportunities to help recover and maintain the nation's marine protected species (MPS) by working more closely with the National Oceanic and Atmospheric Administration (NOAA), the National Marine Fisheries Service, the National Marine Sanctuaries (NMS), the U.S. Fish and Wildlife Service, the Department of State, the Department of Defense, state and local governments, non-governmental organizations, industry, research institutions, and international organizations. We should partner with concerned agencies and organizations to ensure MPS issues are considered whenever agencies propose new regulations. We should work closely with NOAA, NMFS, the NMS, state and local governments, and international organizations to ensure we are doing all we can to provide enforcement for various marine protected areas, and to assist them with their education and outreach initiatives. We should reach out to other management agencies and research institutions to assist in providing the data needed to answer important questions about marine protected species.

2. KEY OBJECTIVES

a. Near Term

1) Maximize assistance to NMFS in investigation and prosecution of protected MPS incidents.	G-O
2) Work closely with NMFS on MPS issues such as fishing gear conflicts, vessel traffic management, and bycatch reduction.	G-M/G-O
3) Work closely with the Navy to monitor research and development efforts to use acoustics for tracking and avoiding endangered whales.	G-O/G-C
4) Use MOUs, as appropriate, to define relations with the National Marine Sanctuaries and other marine protected areas.	G-L/G-M/ G-O
5) Engage other agencies in a discussion of remote marine protected areas.	G-M/G-O
6) Increase our role in federal and international recovery teams and task forces (e.g., the Coral Reef Task Force, the Manatee Recovery Team, and Right Whale Recovery Plan Implementation Teams).	G-M/G-O
7) Emphasize ship-riding opportunities for NMFS and NMS personnel on CG fisheries/MPS patrols.	G-O

b. Mid Term

1) Establish a senior officer liaison billet to NOAA to increase CG input and interaction in developing MPS issues and regulations.	G-M/G-O
2) Establish a senior officer liaison billet to Council on Environmental Quality (CEQ).	G-M/G-O
3) Create opportunities for undergraduate/graduate level marine affairs students to experience CG fisheries and MPS operations.	G-O

c. Long term

1) Consider engaging other agencies in joint rulemaking for MPS regulations.	G-L/G-M

STRATEGY: PUBLICIZE OUR EFFORTS

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1. DISCUSSION

The Coast Guard already has many marine protected species success stories to tell. We are partnering with the USFWS to educate the boating public and reduce manatee deaths by enforcing speed zone regulations in Florida. We are working closely with NMFS and environmental agencies to help protect the highly endangered northern right whale. In Hawaii, we remove tons of derelict fishing nets from coral reefs that are critical habitat of the endangered Hawaiian monk seal. Conducting this work, however, is only half of the job.

If the public is to perceive us as stewards of the ocean, then we must highlight our efforts and successes to the press and the public at every opportunity. Local units need to let communities know what we are doing to protect their waters. Districts should emphasize the importance of our MPS mission in maintaining healthy, sustainable ecosystems. Area and Headquarters staffs must cultivate relationships with the press, civic leaders, stakeholders and legislators to ensure they are aware of the valuable work the Coast Guard is doing. The public must recognize we are the nation's most valuable maritime asset in the effort to protect and sustain our oceans and their resources. The more we are seen taking positive, decisive action and producing good results, the more the public will demand we be properly resourced to perform this vital mission.

2. KEY OBJECTIVES

a. Near Term

1) Maximize publicity of cooperative MPS efforts with federal and state agencies and non-governmental organizations.	G-I/G-L/ G-M/G-O
2) Maximize publicity of Sea Partners MPS initiatives.	G-I/G-M
3) Use inspections and examinations as opportunities to provide MPS information packages to vessels.	G-M/G-O

b. Mid Term

1) Use publicity to generate interest in, and develop ideas for, future marine environment cleanups and other initiatives.	G-I
2) Optimize publicity of CG role in MPS task forces.	G-I
3) Maximize publicity of CG Auxiliary public education efforts in MPS identification, sensitivity, and avoidance measures.	G-I/G-O

c. Long term

1) Develop an interactive forum for public comment and ideas regarding MPS protection.	G-I
2) Raise the profile of the MPS mission to attract recruits with interest in environmental issues.	G-W

APPENDIX E

NOAA MMPA CONSULTATION SUMMARY

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U.S. Department of Homeland Security

United States Coast Guard

Commandant
United States Coast Guard

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5090

17 FEB 2005

Ms. Laurie Allen
Director, Office of Protected Resources, National Marine Fisheries Service
National Oceanic and Atmospheric Administration
1315 East-West Highway
Silver Spring, Maryland 20910

Subject: Environmental Assessments of the Operation of an Integrated Anti-swimmer System Galveston, Texas and San Pedro, California

Dear Ms. Allen:

The United States Coast Guard (USCG) has prepared draft Environmental Assessments (EAs) for the operation of an Integrated Anti-swimmer System (IAS) in San Pedro, California and Galveston, Texas and is preparing a Programmatic Environmental Assessment (PEA) for operation of the IAS at various other ports around the country. Preparation of the EAs and PEA is being conducted in accordance with the National Environmental Policy Act (NEPA) of 1969 (Section 102[2][c]) and its implementing regulations (Title 40 Code of Federal Regulations, Part 1500), and USCG policy (Commandant's Instruction M16475.1D, Procedures for Considering Environmental Impacts).

The purpose of the Proposed Action is to increase the Coast Guard's ability to detect, track and interdict, if necessary, potential underwater threats and as a result, protect personnel, ships, and property from sabotage and/or other subversive acts. The IAS will be co-located with, and used by, the Coast Guard's newly established Maritime Safety and Security Teams (MSSTs). These EAs and the PEA do not analyze the impacts from the stand-up and operation of the MSSTs. Those impacts are the subject of already completed or ongoing EAs. To date, no significant environmental impact has been identified as a result of MSST stand-up and operations. The IAS is not duplicative of existing protective measures, but provides complimentary, non-redundant capabilities that close significant readiness gaps in the nation's ports.

The IAS is comprised of three separate components that may cause underwater noise: the Kongsberg SM 2000 sonar (SM 2000), the Dual High Frequency Identification Sonar (DIDSON), and the underwater loud hailer. Information regarding the frequency and source level for each of these sources is found in the EAs and the PEA. Each EA provides detailed information regarding the region of influence for their discrete locations. The PEA addresses environmental impacts of IAS deployment on a more global scale.

In order to fully understand the potential impacts of IAS deployment, the Coast Guard submitted draft copies of the San Pedro and Galveston IAS EAs to NOAA regional offices and Headquarters for comment. Our primary concern was to determine whether the operation of the IAS was likely to adversely affect species listed under authority of the Endangered Species Act or whether takes of non-listed marine mammals were likely under the Marine Mammal Protection Act.

As required by the ESA section 7(a)(2), consultation is required where a federal activity may affect listed or threatened species or adversely modify critical habitat. In a letter dated 15 April 2004 from the NMFS Southeast Regional Office to the Coast Guard, your agency concurred with the Coast Guard's determination that operation of the IAS in the Galveston area will not likely adversely affect endangered and threatened species under the purview of NOAA Fisheries. No critical habitat is present; therefore, none will be affected. In a letter dated 8 January 2004, the NMFS Southeast Regional Office also concurred with the Coast Guard's determination that operation of the IAS would not have adverse impacts on Essential Fish Habitat. Based on the results of the Galveston EA, the Coast Guard has made an agency determination that IAS operation is unlikely to take marine mammals. Page three (3) below describes the relevant criteria that lead to that determination.

The Coast Guard and NMFS have engaged in a lengthy informal consultation process, which is documented in enclosure (1). As a result of those consultations, the Coast Guard incorporated recommendations from NMFS into the EAs and PEA that help to insure the IAS will not result in takes of marine mammals, adversely affect listed species or essential fish habitat. The Coast Guard's standard operating procedures include the following protocols as recommended by NMFS:

- USCG personnel will monitor the IAS at all times of deployment.
- If IAS is deployed and marine mammal activity is noted which may approach or enter the 160 dB isopleth (200 meter precautionary zone), the operational commander will take prudent measures to avoid impacting the wildlife which, situation permitting, may include shutting down the system.
- When conducting training activities, if marine mammals are detected which may approach or enter the 160 dB isopleth (200 meter precautionary zone), the loud hailer shall not be energized until the marine mammals have left the IAS 200 meter precautionary zone.
- As there is no warm-up period for the SM 2000, the precautionary zone will be visually monitored for 20 minutes prior to turning on the device to be sure it is clear of marine mammals. If the SM 2000 is started during nighttime, night vision devices will be used to monitor the safety zone.
- Barring exceptional circumstances that require such deployment, the IAS will not be placed in a location such that it interferes with obvious marine mammal throughways, or prevents entry or exit of marine mammals into and out of an area, e.g., the mouth of a bay or narrow choke-points, where sonar may deter them from traveling through or by.
- Continued implementation of existing USCG programs to guard against adverse impacts to marine mammals, e.g., the Ocean Steward Plan.

I wish to convey that the IAS is a linchpin in the Coast Guard's strategy to provide the United States with credible assets that allow us to deter, detect and interdict threats to our critical port infrastructure. However, as an environmental law enforcement agency, we also take our duties of environmental stewardship very seriously. The Coast Guard values NOAA's expertise in the study of effects of anthropogenic underwater noise on marine mammals, listed species and other marine species. Our agencies have a long history of supporting each other in the conservation of marine species as is highlighted by recent collaboration in North Atlantic right whale disentanglement operations.

To summarize, the result of the Coast Guard's environmental analysis on the deployment of IAS in the subject areas indicates that such deployment would not have a significant impact on marine mammals, listed species or essential fish habitat. The relevant criterion that leads to this conclusion includes:

- The Coast Guard's intent to use the IAS only to protect human life on moored ships or existing, critical infrastructure/facilities; i.e., IAS is not intended for operations in open ocean environments.
- The significant benefit to the public health and welfare that prevention of a terrorist attack will convey.
- The significant benefit to the environment that prevention of a terrorist attack will convey.
- The temporary duration of the IAS mission at any specific location.
- The IAS will be monitored at all times during operation.
- The SM 2000 and the DIDSON components of the IAS operate at a frequency generally beyond the hearing of most marine mammals, listed species and fish species.
- The location of the IAS sound head in the water (directly connected to a pier or other shoreside fixture) limits potential encounters by marine mammals.
- The limited geographic zone of potential impact from the sound head (approximately 200 meters) where the high frequency sonar noise may fall within the hearing range of some marine mammals and fish.
- The operation of the loud hailer will only occur where a specific threat has been identified and will be a temporary and transient source of sound.
- The limited and tightly controlled use of the underwater loud hailer and the response boat sonar (use only where a specific threat is identified).

The Coast Guard, in submitting the two EAs, requests your agency's concurrence with the following: (1) Deployment of the IAS in the areas described by the respective EAs will not have a significant impact on the marine environment; (2) Deployment of the IAS in the region of influence as described in the San Pedro EA is not likely to adversely affect threatened or endangered species nor will it destroy or adversely modify designated critical habitat; and (3) Deployment of the IAS as described in the EAs is unlikely to take marine mammals.

The Coast Guard values your Agency's expertise regarding the environmental impacts of sound in the water on marine mammals. If NOAA HQ has additional recommendations it is essential that we receive them not later than 30 days from receipt of this correspondence. The United States' maritime security interest requires the Coast Guard to move forward with urgency on this matter.

If you have questions regarding this letter contact Mr. Ken McDaniel at (202) 267-2039 or Ms. Kebby Kelley at (202) 267-6034 for questions about the EAs and the PEA.

Sincerely,

K.G. QUIGLEY
Captain, U.S. Coast Guard
Chief, Office of Defense Operations

Enclosure: (1) *Communication History between USCG and NOAA Fisheries*
(2) DRAFT – Preliminary Final - *Environmental Assessment of the Installation and Operation of an Integrated Anti-Swimmer System, Galveston, Texas*
(3) DRAFT – Preliminary Final - *Environmental Assessment of the Installation and Operation of an Integrated Anti-Swimmer System, San Pedro, California*

Enclosure 1

17 FEB

Communication History between USCG and NOAA Fisheries for the Environmental Assessments of the Operation of an Integrated Anti-Swimmer System Galveston, Texas and San Pedro, California					
Date	**To**	**From**	**Type**	**Re:**	**Notes**
January 27, 2004	USCG	NOAA SW Region	Letter	San Pedro EA	Indicated the IAS may require a permit under MMPA.
February 14, 2004	USCG	NOAA SE Region	Letter	Galveston EA	Responded to a review of the Draft EA and Suggested an MMPA permit might be required. The letter suggested contacting Ken Hollingshead at NOAA HQ.
April 28, 2004	NOAA HQ	e^2M	Documents	San Pedro and Galveston EAs	USCG's consultant (e^2M) sent (via Federal Express) copies of the Draft San Pedro and Galveston IAS EAs to Ken Hollingshead at NOAA HQ for MMPA review.
April 29, 2004	NOAA HQ	e^2M	Email	NOAA HQ MMPA Review	Request to confirm receipt of the documents sent overnight mail on April 28, 2004. (No Response)
May 5, 2004	NOAA HQ	e^2M	Email	NOAA HQ MMPA Review	Second email requesting confirmation of the documents sent on April 28, 2004
May 12, 2004	e^2M	NOAA HQ	Email	Data Request	Sarah Hegadorn requested a copy of the U.S. Navy Underwater Swimmer Detection System EA referenced in the IAS EAs.
May 12, 2004	NOAA HQ	e^2M	Email	document	With concurrence from USCG e^2M forwarded the Navy EA to NOAA staff in an email.
May 14, 2004	USCG	NOAA SW Region	Letter	San Pedro EA	Provided some comments on the Draft reports and formally deferred the Marine Mammal Permit issue to NOAA HQ.
June 17, 2004	NOAA HQ	e^2M	Phone	NOAA HQ MMPA Review	Request for status of NOAA review. NOAA suggested potential mitigation. NOAA HQ staff gave no formal schedule for providing comments.
June 24, 2004	NOAA HQ - Ken Hollingshead	USCG – Bill Nagy	Phone	NOAA HQ MMPA Review	USCG requested update on status of NOAA review. Ken Hollingshead provided some details of NOAA review process and deferred specific comments to Sarah Hegadorn.
June 28, 2004	NOAA HQ Sarah Hegadorn	USCG – Kebby Kelly	Phone	NOAA HQ MMPA Review	Conversation regarding status of NOAA HQ review and need for MMPA permits. Questions from NOAA prompted scheduling a conference call for July 1.

Enclosure 1

17 FEB

Communication History between USCG and NOAA Fisheries for the Environmental Assessments of the Operation of an Integrated Anti-Swimmer System Galveston, Texas and San Pedro, California					
Date	**To**	**From**	**Type**	**Re:**	**Notes**
July 1, 2004	NOAA HQ	USCG	Conference Call	NOAA HQ MMPA Review	Participants included: Kebby Kelly (G-SEC-3), Bill Nagy (G-OPD), LT Curtis Borland (G-LEL), and Zante Capuno (G-SEC-3) from USCG; Alan Finio and Don Beckham from e2M; and on the phone at NOAA, Ken Hollingshead, Sara Hegadorn, Monica DeAngelis and representatives of NOAA's NEPA compliance group and acoustical lab. USCG answered several question from NOAA Fisheries to clarify information in the Draft EAs. NOAA indicated that a permit might not be required for the operation of the IAS in Galveston and San Pedro IAS. NOAA did indicate that they might require some type of nationwide permit action after they review the draft Programmatic IAS EA (PEA) (on hold for resolution of this issue). When pressed by USCG, NOAA indicated that they would have a written decision and comments to USCG within three weeks [on or before July 22, 2004].
July 28, 2004	NOAA HQ – Sarah Hegadorn	USCG – Kebby Kelly	Phone	NOAA HQ MMPA Review	USCG requested a status for NOAA's comment letter. Sarah Hegadorn said all of her supervisors were in CA and NOAA would not have the letter ready for 2 weeks.
August 3, 2004	NOAA HQ	USCG	Call	NOAA HQ MMPA Review	Bill Nagy called NOAA Fisheries and requested a status of the comment letter. NOAA Fisheries told Mr. Nagy that letters of "no take" for the Galveston and San Pedro IAS EAs was drafted and were in NOAA Fisheries internal review process, and could be expected soon.
August 23, 2004	NOAA HQ	USCG	Call	NOAA HQ MMPA Review	Bill Nagy called NOAA Fisheries and requested a status of the comment letter.

Enclosure 1

17 FEB

Communication History between USCG and NOAA Fisheries for the Environmental Assessments of the Operation of an Integrated Anti-Swimmer System Galveston, Texas and San Pedro, California					
Date	**To**	**From**	**Type**	**Re:**	**Notes**
August 23, 2004	USCG	NOAA HQ	Email	NOAA HQ MMPA Review	From Sarah Hegadorn (NOAA) stating that "The letter of 'no take' for the Galveston IAS is complete. Ken [Hollingshead] has reviewed it and approved it. It is with our General Counsel now. We are making a separate letter of 'no take' for San Pedro - we have to respond to each project location separately." Email unofficially outlined four conditions that NOAA Fisheries feels should be implemented in order to ensure that no takes of marine mammals would occur. These conditions have been incorporated into the San Pedro and Galveston IAS EAs, with additional language necessary to protect the integrity of the IAS mission and emphasize the importance of the IAS to port security strategies. This email included a question regarding the attenuation of sound levels from the IAS. It should be noted that this question was asked almost 4 months after Ken Hollingshead received the Draft EAs for review. At the request of Bill Nagy, e2M developed a response to NOAA's question
August 27, 2004	NOAA HQ	USCG	Email	Document	USCG forwarded its response to Sarah Hegadorn's August 23, 2004 email question.

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